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NetworkWorld

The Best Issue

Our annual guide to winning networks, strategies and products
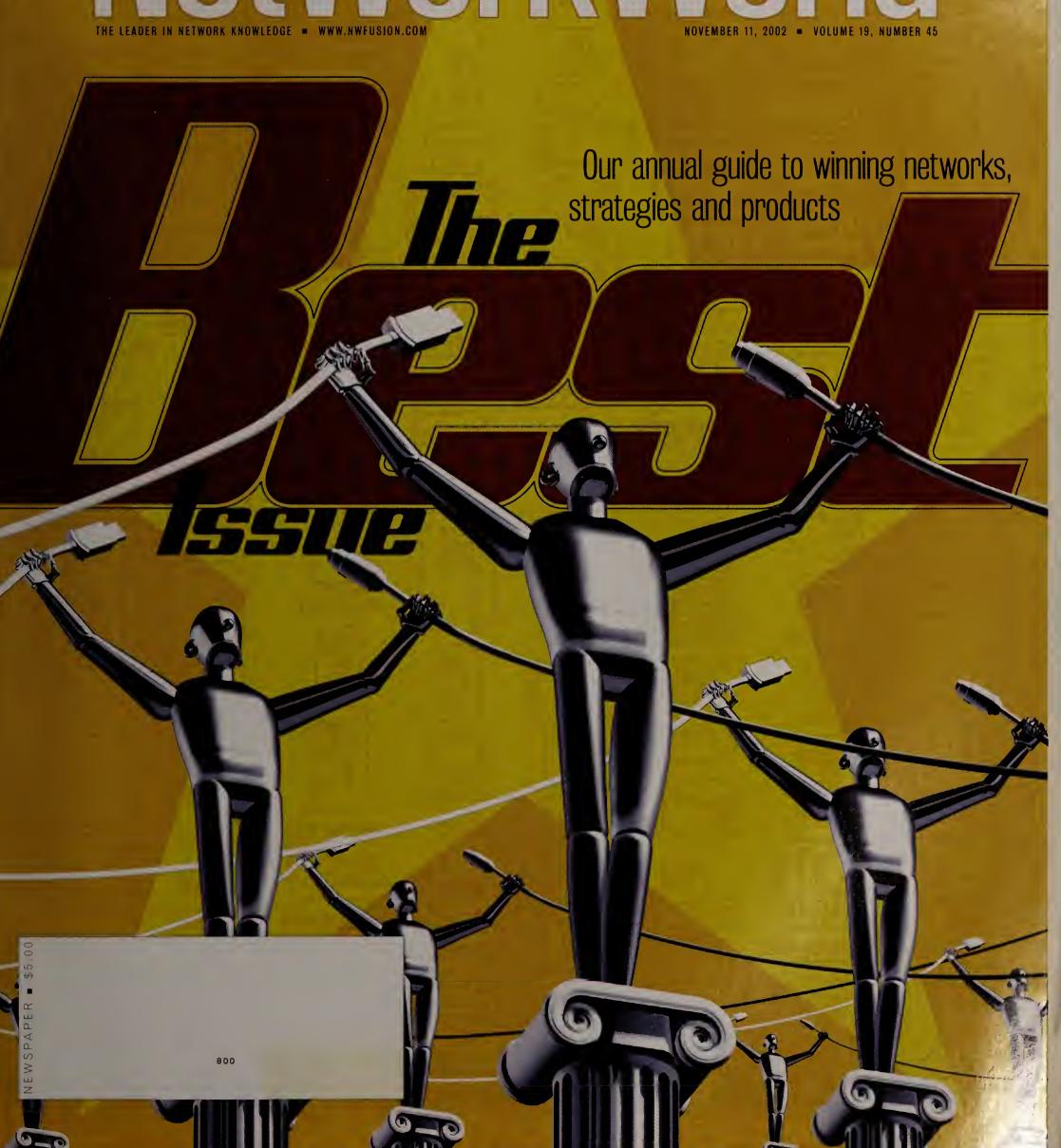
"Can the servers han

Anything can happen to your infrastructure. Make sure it scales. Today's business world is a roller coaster ride of ups, downs, and complete unknowns, and the companies that adapt to this climate are the companies that will thrive. In this kind of environment, where _____ can happen at any moment, it is increasingly important that your infrastructure provides the headroom and ability to increase or decrease capacity as necessary almost instantly. Here's how the Microsoft® platform can help you get there:

Scalability world records and price-performance leadership

The Windows® Server family holds the world performance records in the TPC-C and TPC-W benchmarks, which measure transactions per minute, and Web interactions processed per second, respectively. In TPC-C price-performance benchmarks of clustered solutions, Microsoft has the top four results, and six of the top ten. In tests of non-clustered systems, Microsoft solutions earned the top ten spots in price-performance. In a head-to-head comparison of the best non-clustered results on Windows Server/SQL Server 2000 Enterprise Edition and the best Sun Microsystems result, the Microsoft solution topped Sun in performance by 360 percent, at a cost-per-transaction that is 42 percent lower.*

Scaling up: Getting the superior performance you need

Today, many companies have accumulated large quantities of servers, due to new applications, growing data requirements, and through mergers and acquisitions. Consolidating these large numbers of servers onto fewer servers (known as "scaling up") can help reduce the time and effort needed to manage the servers while increasing performance. Also, many of today's most popular ERP, CRM, and business intelligence applications are architected to perform best on a "scale-up", single image server. Microsoft Windows 2000 Datacenter Server and SQL Server 2000 Enterprise Edition are designed to efficiently utilize hardware resources within a single image, and can scale-up to 32 processors and 32 GB of memory. All of which means that if you need to consolidate your workload or deploy large databases, the Microsoft platform can deliver.

dle that?"

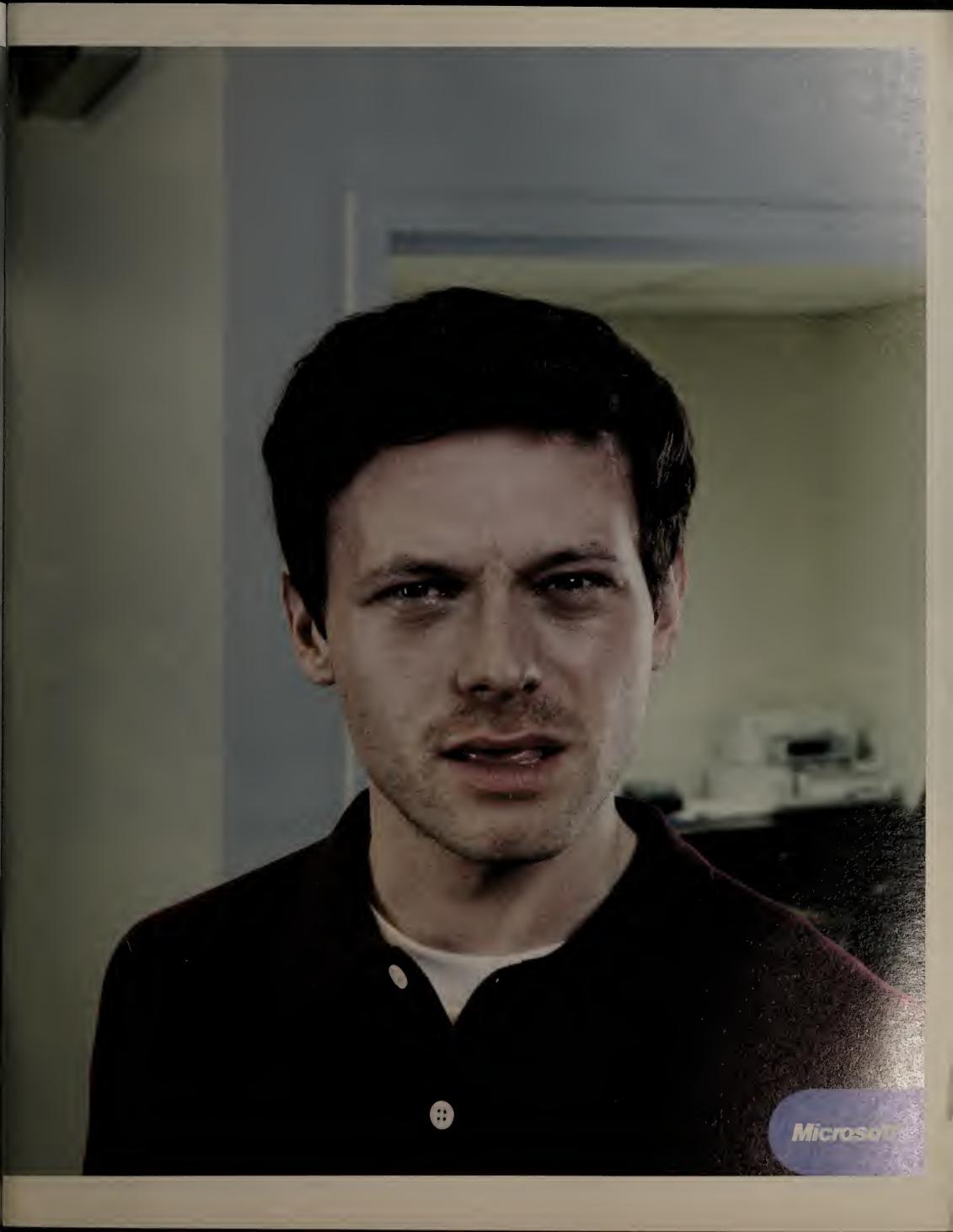## Scaling out: Adding capacity when you need it, where you need it

With today's unpredictable business climate, your computing capacity requirements can change quickly and dramatically. Distributing the computing workload among multiple servers, with the ability to add or subtract servers to increase or decrease capacity, helps you optimize your resources. "Scale out" scenarios are typically ones in which applications are architected for distributed processing, such as Web infrastructure and application servers. The Microsoft platform supports both clustering and network load balancing (NLB), and Windows 2000 Advanced Server can support up to 32 servers in NLB scenarios. In addition, with Application Center 2000 you can manage a farm of servers as one server, simplify your management processes, and enable a reduction in complexity. So if you need a flexible, scalable environment, the Microsoft platform is ready.

"*JetBlue* is using the Microsoft Server Platform to enable hardware consolidation, achieve better price-performance, decrease IT support costs, and reduce application development time. The scalability of our Microsoft-based infrastructure gives us the confidence that we are ready to handle today's usage spikes as well as future growth."

—Jeff Cohen, Vice President & CIO, JetBlue Airways

For a Server Consolidation Kit, webcasts, and other information that can help you get your infrastructure scalable enough for _____, visit **microsoft.com/enterprise/scalability Software for the Agile Business.**

"We're getting more _____, more _____, and a bigger _____."
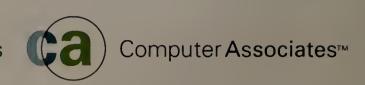
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Toshiba's new projectors lower the price bar, see page 50.

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Our annual guide to winning networks, strategies and products.

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After perusing our annual guide to the best technologies, products and practices, head online for exclusive content, including full profiles of the runners-up in our User Excellence Award competition, as well as the list of honorable mentions.
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Forum: Blogs as business tools
Are Web logs legitimate productivity tools or time wasters? Read Bill Keaggy's and Mark Hurst's thoughts on the subject, then jump into our forum and add your thoughts.
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Seminars and Events

Convergence is a go
Voice and data finally can be converged on the only network that matters: yours. Let keynote presenter Steve Taylor be your guide as he shows you why the time is now for VoIP. Come to Network World's Tech Update: "VoIP: The Right Time for a Rollout" and find out how to start a VoIP implementation today.
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Columnists

Compendium
www, why, why, why
Fusion Executive Editor Adam Gaffin finds a guy who wonders why some sites still require you to type www to get to them.
DocFinder: 3060

Help Desk
Wireless link problems
Columnist Ron Nutter helps a user who's having trouble getting his wireless access points to ping each other.
DocFinder: 3061

Home Base
Telework culture clash
Columnist Jeff Zbar wonders if you've got a problem on your hands when your teleworkers fall into infrequent contact with the home office. **DocFinder: 3062**

View from the Edge
Don't ignore the independents
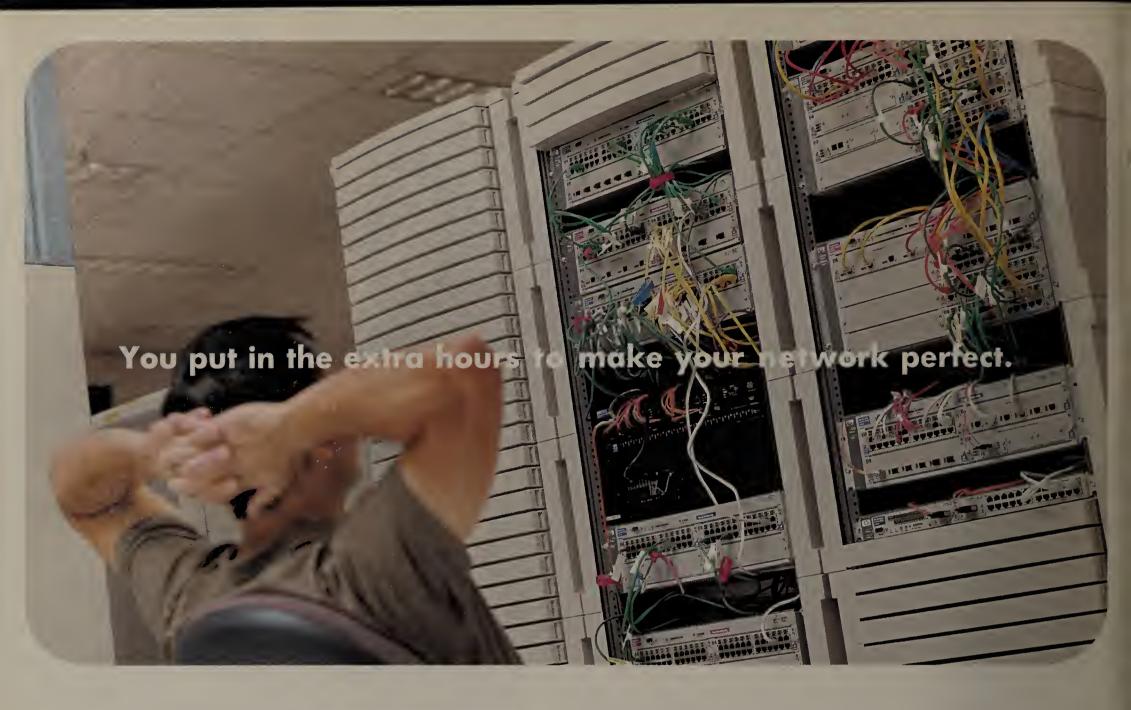The Edge Managing Editor Jim Duffy says you should turn your attention to the forgotten ILECs — the non-Bell incumbent local exchange carriers.
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invent

News

Faster wireless LAN technology on tap

■ BY JOHN COX AND
PHIL HOCHMUTH

LAS VEGAS — The potential heir-apparent technology for high-speed wireless LANs will take center stage at Comdex Fall 2002 next week.

Chip makers Intersil and Broadcom, along with a number of wireless LAN vendors using their silicon, will demonstrate wireless products based on the as-yet-unratified IEEE 802.11g specifications, which at 54M bit/sec could be successor to the popular 802.11b, or Wi-Fi, standard, which tops out at 11M bit/sec.

Proponents of 802.11g say it offers corporations an easy way to migrate their 802.11b radio infrastructures, including interface cards and access points, to a higher speed. That's because wireless LANs based on 802.11g will use the same 2.4-GHz band

that 802.11b uses. The higher data rate, translating into actual throughput of about 17M to 19M bit/sec, would give users more

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FALL 2002**

bandwidth for an array of multimedia and other data-intensive applications.

The change also will make it easier for customers with 802.11b deployments to increase throughput without having to replace wireless LAN infrastructures. That's what has to be done today when shifting from 802.11b to 802.11a, which runs in the 5-GHz band.

Vendors say the result is a wireless LAN that has the longer range of 802.11b and the higher throughput of 802.11a. In addition, any existing 802.11b adapter

card will be able to work with an 802.11g access point. That's not possible with 802.11a adapters. So network executives can replace an 802.11b access point with an 802.11g access point — or simply swap the radio cards — and existing wireless users still can connect to the network at the 802.11b data rate of 11M bit/sec. When or if 802.11g takes hold, new adapter cards can be phased in gradually, enabling these devices to join a 54M bit/sec wireless network.

The first 802.11g products might be available as early as year-end or early 2003. They'll carry a higher price tag than 802.11b products, perhaps about 20%, according to one vendor who asked not to be identified. Current prices for 802.11b adapters range from $45 to $140; for 802.11b access points, from about $385 to $1,050, depending

on features. The 802.11g products are likely to complicate even further wireless LAN return-on-investment calculations for network executives.

At Comdex, Intersil will demonstrate its Prism Duette

A quick look at 802.11g wireless LANs

New products could triple throughput in 2.4-GHz band.

What's cool:

- 54M bit/sec data rate, estimated 17M to 19M bit/sec throughput.

- Higher throughput sustained over longer ranges than 802.11a.

- Existing 802.11b clients still work (but at the 11M bit/sec rate).

What's uncool:

- IEEE standard still not ratified.

- No Wi-Fi Alliance interoperability testing until after ratification.

- Three channels (vs. eight for 802.11a) limits number of access points and users in a given area.

chipset, which lets the radio component in the chip handle 802.11a, 802.11b and 802.11g transmissions.

The company already has what it calls "alpha customers," most of them big Taiwanese component builders. Using Duette samples, those vendors are designing 802.11g cards that wireless LAN vendors will incorporate into access points or adapters, says Larry Ciaccia, vice president for Prism wireless products. The component builders are using samples of the Intersil chips for initial design work. Intersil plans to ship higher volumes of chips by year-end and be in full production by March.

Cisco has worked closely with Intersil, using a number of Intersil technologies, but is creating its own media access control layer and integrating Cisco management and security features. Cisco sees 802.11g as a way to give its current Aironet 802.11b wireless LAN customers the ability to shift gradually to higher throughput without having to replace current adapter card and rewire the infrastructure.

Buffalo Technology, a major wireless LAN player in the home and small-business markets, bring out an 802.11g access point and adapter each by year, says Morikazu Sano, president with the company

Universal user IDs ease bond trading

■ BY JOHN FONTANA

NEW YORK — A consortium of the world's top financial institutions is sharing user directories so customers can enjoy single sign-on access across their Web sites in an effort that is shaping up to be a blueprint for emerging universal user identification standards.

Under a program called the Bond.Hub consortium, Credit Suisse First Boston, Goldman Sachs, JPMorgan Chase, Lehman Brothers, Merrill Lynch, Morgan Stanley, Salomon Smith Barney and UBS Warburg have created single sign-on capabilities for 15,000 mutual customers seeking fixed-income investments by joining customer identities stored in their respective directories — a concept known as federating.

With Bond.Hub, a user who signs in on one private bond site can cross over to another institution's private site, for which the user has an account, without having to enter a separate username

and password. The hub operates in the background and synchronizes a user's identities from each institution, and brokers the exchange of encrypted security credentials.

While standards to support universal identities for use across the Internet are just beginning to take shape, Bond.Hub shows that federating authentication and authorization credentials can ease the burden of administering

identities and access-control data for internal users and business partners. Today, companies often have to administer those accounts manually or delegate administration to partners, both of which are labor intensive and don't scale.

The proprietary Bond.Hub for federating identity is equivalent in concept to a proposed standard being developed by the Liberty

Who are you?

On average, an end user in a large company has access to 27 systems on the network,

73%

of which require a user name and password for access, according to a recent Meta Group/Pricewater-houseCoopers study of network executives.

Alliance, a consortium of corporations and vendors that released a specification in July for a Web-based universal identity.

The Bond.Hub effort also mirrors the goals of the Security Assertion Markup Language (SAML), an XML-based standard security protocol that the Organization for the Advancement of Structured Information Standards approved last week (see related story, page 24).

"Bond.Hub proves that the Liberty Alliance and SAML standards are not being defined in a vacuum," says James Kobielus, an analyst with Burton Group and a Network World columnist. "It's a proof of concept for federated identity with account linking and single sign-on. That's a core-use case for Liberty Alliance."

The Liberty Alliance specification, which incorporates SAML, seeks to establish a standard user authentication and authorization system that is valid across Web sites. Microsoft is working on a similar project with its Passport technology. Both projects will require not only a universal user identity but also standards for creating permissions and policies regarding access control, and con-

New Bits

GOP to lead on high-tech issues

■ When the Republican Party takes control of the U.S. Senate in early January, a new crop of leaders will emerge on high-tech issues. Sen. John McCain (R-Ariz.), a long-time proponent of Internet privacy, likely will be the chair of the Senate Commerce, Science and Transportation Committee. McCain supports more small-business and minority ownership of telecom assets and a market-based approach to broadband deployment. The committee's Communications Subcommittee likely will be led by Sen. Conrad Burns (R-Mont.), a supporter of legislation regarding online and wireless privacy, rural availability of high-speed Internet access, antispam measures and e-government. In the Republican-controlled U.S. House of Representatives, the key leader on communications issues will remain Rep. Billy Tauzin (R-La.), who chairs the House Energy and Commerce Committee. Tauzin has supported legislation freeing up the Baby Bells for long-distance and broadband services, and creating new spectrum policy to encourage 3G wireless deployment.

Analyst John McConnell dies

■ John McConnell, a well-known industry analyst and president of McConnell Associates, died suddenly Nov. 3 at his home. He was 58 years old. A computer science graduate from the University of California, Berkeley, McConnell had a career in the network industry dating back more than 25 years. He became an expert in network and systems management, working with leading management vendors such as IBM, Hewlett-Packard and Computer Associates to improve products and address customer needs. Most recently McConnell focused on service-level management, policy-based management and management technologies for e-business initiatives. McConnell spoke frequently at industry events and contributed columns to trade publications.

C&W wins legal round vs. Akamai

■ Cable & Wireless won't have to turn off its content delivery network service. In the latest twist in the legal battle of the CDNs, a federal judge in Boston has denied a motion that Akamai Technologies filed to find C&W in contempt for not shutting off its service. A federal jury last year found that the Digital Island Footprint CDN service, now owned by C&W, infringed on an Akamai patent, and federal Judge Rya Zobel issued a permanent injunction against C&W this summer. C&W has said the ruling is moot because it addresses technology no longer used within its CDN service. On Nov. 1, Zobel validated that claim by denying Akamai's contempt motion.

COMPENDIUM

The power-strip guy

Glenn Fleishman is helping to organize a conference. He's appointed himself the power-strip coordinator — he'll buy a bunch of power strips for laptop-toting attendees to use. And he's hoping to raise money through sponsorships.

Read more at www.nwfusion.com, DocFinder: 3064.

■ TheGoodTheBadTheUgly

Persistence pays off. He needed the power of 10,000 computers running nonstop for 549 days, but Notre Dame researcher Chris Monico has won a $10,000 prize by breaking an encryption code in a Certicom-sponsored contest. "I wanted desperately to jump up and down, but the mathematician in me said, 'You'd better double check,'" Monico told Reuters. The contest required cracking a 109-bit key.

Acronym soup. How are technology acronyms like the weather?. . . Complaints abound but solutions elude. Three of every four consumers say they're sick of such acronyms, according to a survey commissioned by Iogear. Half say that displeasure discourages them from buying. (Ironically, a press release about the survey describes Iogear as a maker of KVM and USB technologies.) ➤

Facing the music. A survey by ComScore Networks shows that revenue from online music sales during the first nine months of this year plummeted to $545 million from $730 million in the same period a year earlier. While Napster might have been idled by legal action, similar rogue Web services such as Kazaa and Morpheus are being blamed for the decline.

RSA, PKWare put heads together

■ RSA Security, which makes public-key infrastructure and access-control software, and PKWare, which makes the Zip compression software for storing and exchanging large data files, have agreed to cross-license each other's technologies. PKWare can use RSA's BSAFE encryption software with PKZIP compression products, while RSA can use PKZIP compression. The alliance also involves joint development on new products for desktop, server and mainframe. Use of encryption to scramble data makes it safer, but adds overhead. Compression could help reduce the overhead associated with encryption.

IBM joins storage, server units

■ IBM plans to combine its storage and server divisions early next year, and will shift storage head Linda Sanford to lead the on-demand computing initiatives that CEO Sam Palmisano recently outlined. IBM's Server Group and Storage Systems Group will be merged as of Jan. 1, operating as one organization under the direction of Bill Zeitler, currently senior vice president of the server group. On-demand computing will be IBM's focus, Palmisano said in his recent talk, describing a vision of IT infrastructure incorporating technology from an array of product areas aimed at maximizing businesses' flexibility and responsiveness.

Sun shows off new 'compute ranch'

■ Sun last week opened a research center dedicated to developing new designs for its UltraSparc processors in Burlington, Mass. The "compute ranch," as Sun calls it, will feature more than 7,500 UltraSparc nodes running batch jobs 24-7, the company said. The new center lets Sun manage the complex number of calculations needed to simulate the interactions of millions of transistors on future UltraSparc chips. On a typical day, Sun's hardware designers submit about 140,000 jobs to the network, which would require about 15 years to process with one processor, Sun said.

More going online for government info

■ The number of citizens worldwide using the Internet to access government services or products during the past year increased 15%, according to the second Government Online Study published last week by the London market research company Taylor Nelson Sofres. Globally, 30% of citizens said they had accessed government services online, compared with 26% a year ago. Countries showing the highest increases include Australia (from 31% to 46%), Turkey (from 3% to 13%), the Netherlands (from 31% to 41%) and the U.S. (from 24% to 43%). Countries showing the highest levels of e-government usage are Sweden (57% of the population), Norway (56%), and Singapore and Denmark (both 53%), according to the study. Countries with the lowest level of usage were Japan and the U.K., each with 13% of the population.

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Execs share tips on 'investing' in bad times

■ BY ANN BEDNARZ

BOSTON — American Express has continued to grow its investment in IT throughout the current economic downturn, resisting the temptation to retreat from new initiatives until the economy improves.

"Uncertainty makes business planning harder to do, even as it makes it more important," CEO Kenneth Chenault told an audience of IT executives last week at Forrester Research's annual Executive Strategy Forum.

The financial services firm over the last few years has worked to achieve economic flexibility through, among other tactics, broadening its product set, expanding distribution channels and improving operational efficiency — all through the use of technology. In particular, The Internet has helped it rework all of its processes, products and services, Chenault said.

Forrester Research has a term for companies like American Express that use technology to accelerate their recovery

> **" Uncertainty makes business planning harder to do, even as it makes it more important. "**
>
> **Kenneth Chenault**
> CEO, Forrester Research

and try to distance themselves from less-bullish competitors: "stealth aggressors." Companies such as Wal-Mart, Procter & Gamble and Intel are making bold technology investments and driving to emerge from the recession as dominant, said George Colony, CEO of Forrester, in the conference's opening address.

About 600 attendees turned out for the two-day event, which centered around a theme: The right application of technology will accelerate your recovery.

So what are the best technologies to apply now? Forrester identified four as critical to companies on the road to recovery:
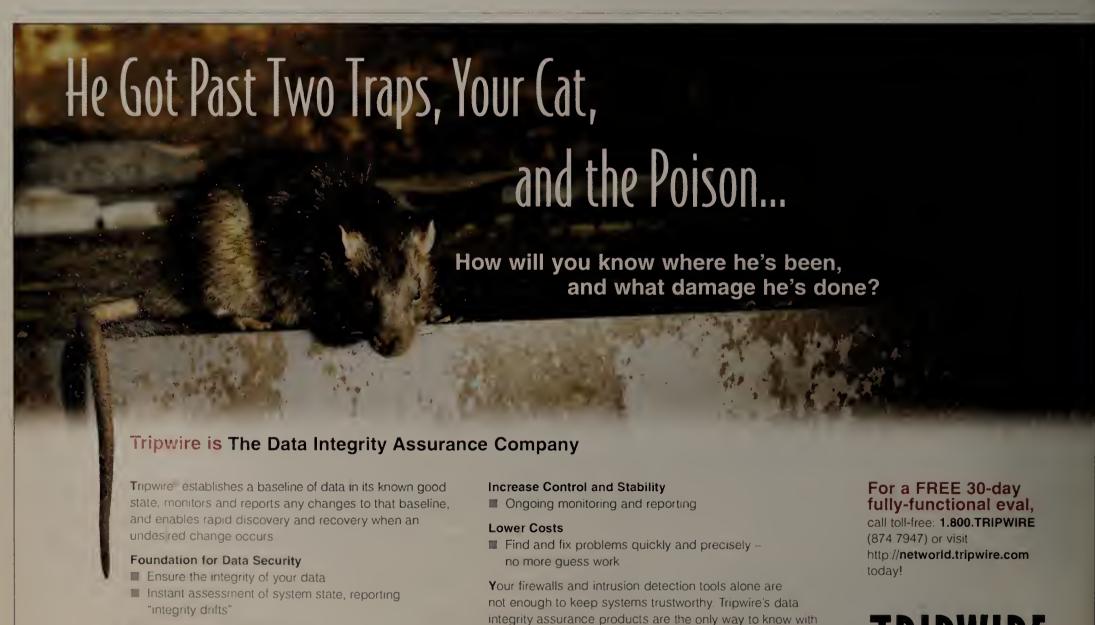
● Web services, even though it is "vastly overhyped" and obscured "by the haze of .Net," Colony said.

● Sound customer-facing technologies that steer customers to the right channel — whether the Web, call center, retail store or catalog — at the right time to maximize satisfaction while keeping costs down.

● Organic IT, a Forrester term that describes a migration from monolithic, proprietary back-end systems to more flexible, modular systems that can be apportioned on demand.

● Adaptive supply networks that let companies adjust to accommodate changing market conditions and supplier demands.

These technologies correlate with exceptional financial performance, said Christopher Mines, group director at Forrester. Mines shared the results of a new survey showing the companies that spend the most money on IT aren't necessarily the ones achieving the most revenue and cash-flow growth.

Forrester looked at three variables — revenue growth, average return on investment and cash-flow growth — over a three-year period and compared each company's average with the industry average. It found that companies that spent the most on IT — about 4.5% of revenue — were outperformed by companies spending 3.3% of their revenue on IT. Those spending the least on IT — about 2.6% of revenue — turned in the lowest financial performance.

The study also showed the top performers are early Web services adopters, have made their supply-chain software and customer-focused software work for them, and are frugal when it comes to infrastructure expenditures.

A common theme among all the speakers was the importance of tackling process and organizational changes when new technology is considered. For this reason, it's critical that technology decisions be made by a consensus of IT, marketing and business strategists. ■

Trio of IDS vendors show latest wares

NetContinuum releases its first product, while ForeScout and Top Layer issue upgrades.

■ BY ELLEN MESSMER

Choice in intrusion-detection systems gets wider this week as start-up NetContinuum makes its debut with a Web security appliance, while ForeScout Technologies and Top Layer Networks expand their product lines for thwarting network attacks.

NetContinuum will unveil the Web Security Gateway NC-1000, an application-layer gateway appliance that sits behind a firewall and in front of a Web server to block HTTP-based attacks and serve as a proxy for access control and Secure Sockets Layer (SSL) encryption processes.

NC-1000 is intended to perform application-intrusion prevention like competitors Sanctum, KaVaDo and Stratum8 perform with their software-based products, but

New from intrusion-detection vendors

ForeScout, NetContinuum and Top Layer are taking the wraps off new wares this week.

Company	Product	Description	Price
ForeScout	ActiveScout Enterprise	Enterprise Manager console correlates reports and manages up to 50 Scout devices, which are placed outside a firewall to detect and block selected attacks.	Enterprise Manager starts at $10,000; each Scout at $3,000.
NetContinuum	Web Security Gateway NC-1000	Runs at 100M bit/sec or 1G bit/sec behind a firewall and in front of a Web server to prevent Port 80 attacks; access controls; SSL encryption.	$28,000 to $38,000.
Top Layer	Four models of in-line Attack Mitigator IPS appliance	Can detect and block Port 80 and denial-of-service attacks.	Models range from $15,000 to $250,000.

also offers an encryption engine and access control based on passwords or certificates.

NC-1000 can reach near-gigabit speed to process 6,000 encrypted sessions per second or 1 million unencrypted sessions. The gateway also can hide information about the Web site, making it harder for hackers to determine the Web server platform.

"We wanted to 'masquerade' our front-end systems," says Mike O'Connell, systems architect at Ross Stores in Newark, Calif., who's been beta-testing the NC-1000 as a core security component for the retail chain's Web-based business-to-business site.

"But we were also looking to solve three or four problems at once with this, including SSL encryption and intrusion detection," he says.

Ross Stores is opting to use the public-key digital certificate capability in NC-1000 to provide these trading partners with a certificate for secure access to the Ross Stores Web site. NC-1000 also can provide a log of Web-based transactions and time-stamp them.

According to Pete Lindstrom, research director at Spire Security, there is no other product comparable to NC-1000. "This represents a convergence between the IDS and trust capabilities in one security appliance," he says.

NetContinuum was founded by two network engineers, Peter Roman, vice president of engineering, and Jan Bialkowski, CTO, with $36 million in venture capital funding, primarily from Menlo Ventures, according to Wes Wasson, NetContinuum's vice president of marketing.

The interest in stopping attacks rather than simply monitoring them has other IDS vendors stepping up their own efforts.

ForeScout, which last year introduced ActiveScout Site Solution for stopping network-based attacks outside the perimeter firewall, now has a version of the IDS that can be managed more effectively across a large company.

Unlike the first version of ActiveScout, where Scout devices had to report to its own management console, the new version available this week, called ActiveScout Enterprise, lets a central console manage up to 50 Scouts.

The Scout device doesn't block attacks but instead thwarts connections from attackers through techniques such as TCP re-set, says Nancy Blair, ForeScout's vice president of marketing.

Meanwhile, Top Layer will announce products aimed at letting customers block HTTP Port 80 attacks. Top Layer's previous Attack Mitigator products focused on stopping denial-of-service attacks.

The new products, called Attack Mitigator IPS, look at HTTP traffic and other Web server vulnerabilities. Top Layer's four in-line IDS products can operate in active-blocking or passive-monitoring mode.

The $15,000 Attack Mitigator IPS 100, for use on a 100M bit/sec link, has a physical bypass capability in the event the in-line active-blocking device goes down. The $25,000 gigabit-speed Enterprise 1000, with up to seven 100M bit/sec ports, is for use on the Internet perimeter and inside the corporate network.

The IPS 2400 and the IPS 2800, costing from $125,000 to $250,000, are for data centers where four to eight of the appliances can be clustered to meet routing requirements common in Web-hosting facilities.

An early adopter of the Attack Mitigator IPS, Larry Pfeifer, network engineer at Widener University in Philadelphia, says the IDS appliance can block attacks against the university's network without impeding legitimate flow. But Widener, which also uses the RealSecure passive-monitoring IDS from Internet Security Systems, has no plans to abandon this second IDS behind Attack Mitigator.

"I want this there to catch anything Attack Mitigator IPS doesn't see and to have an IDS available if the in-line Attack Mitigator goes down," Pfeifer says. ■

Neoteris rolls out SSL gear

■ BY TIM GREENE

MOUNTAIN VIEW, CALIF. — Neoteris is making it possible to cluster its Secure Sockets Layer remote-access machines so customers don't lose their connections to business networks if one box should fail.

The company this week is demonstrating three new hardware platforms that boost capacity of its products so they will be more attractive to customers with a lot of remote users. Neoteris uses SSL technology in Web browsers rather than remote-access clients that would have to be installed on remote PCs. This differs from IP-Security-based VPNs that require dedicated client software on remote machines and is simpler to deploy.

The new equipment, called Access Series, can support up to 7,000 SSL sessions at a time by clustering the boxes. The company's old hardware, Instant Virtual Extranet (IVE), maxed out at 1,000.

The Access Series replaces IVE hardware and sports a new version of software, IVE 3.0, that lets users cluster the devices and compress traffic. It can tap external directories to create groups of users that are allowed access to the gear.

The devices sit in a separate network segment behind the firewall and establish SSL connections to remote machines after the remote users authenticate themselves. The devices proxy traffic between the remote machines and corporate servers that host Web-based and other applications.

The option to cluster gear is key to Palo Alto law firm Wilson Sonsini, Goodrich & Rosati, says the firm's CIO Phillip Hoare. The firm now has redundant IVE boxes, so if one fails, users have a second one to which they can reconnect. If one device fails,

Neoteris's Access 1000, 3000 and 5000 SSL remote-access products are more powerful than the company's existing gear.

another box picks up the sessions without user intervention. "Remote access is essential to us after-hours, and we have an unforgiving population, being lawyers," Hoare says.

Neoteris competes against vendors such as Aspelle, Aventail, Netilla and SafeWeb, as well as V-One, which has an alternative clientless technology.

"I believe [Neoteris is] the only one of the start-up, SSL remote-access vendors doing failover," says Zeus Kerravala, a vice president with The Yankee Group.

Customers can link up to eight Access 5000 boxes in load-balancing, failover mode. Each box is active all the time, processing SSL sessions, and if one fails, the others take over. Together, eight Access 5000s can support 7,000 simultaneous users. Access 5000 supports compression that can cut the size of transmission time in half, saving download time for users. It also has a separate processor to handle SSL encryption.

The other two Access boxes have smaller capacity and support fewer features. Access 3000 lacks compression and an SSL processor, and supports failover between only two boxes. Access 1000 boxes can be paired, but when one box fails over to the other, sessions must be re-established. There are three models of Access 1000 that cost $10,000 to support 50 simultaneous users, $15,000 to support 100 and $25,000 to support 250. Access 3000 comes in four models that support between 100 and 1,000 users for $30,000 to $70,000. Access 5000 has five models from $40,000 to $115,000 to support 100 to 2,500 simultaneous users.

The original IVE appliance ranged in price from $10,000 for support of 50 simultaneous users to $100,000 for support of 1,000.

The new appliances will be available Dec. 15. ■

WHY NOT MAKE COMPUTERS MANAGE THEIR OWN COMPLEXITY?

As data centers become more complex, there are two choices: Create computers that are simpler to manage. Or convince one out of every two college graduates to become a systems administrator. A simpler way is at **SUN.COM/WHYNOT**

Sun microsystems

Veritas acquisition adds to market consolidation

■ BY DENI CONNOR

MOUNTAIN VIEW, CALIF. — Veritas last week bought NTP Software technology to supplement the package it sells to help monitor and manage storage networks.

Veritas will integrate NTP's Storage Reporter storage usage trend and projection package into Veritas' SANPoint Control in the next six months to improve its file system scanning, trend analysis and capacity usage capabilities. The company also will integrate Storage Reporter with its Volume Manager, File System and NetBackup, as well as other Veritas products, over the next 12 to 18 months.

The acquisition is Veritas' second in the storage resource management (SRM) market. In 1998, the company acquired Windward Technologies and integrated its predictive-failure analysis tools into its storage management products.

The acquisition of NTP's reporting utility comes at a time when SRM companies are being snapped up by large systems manufacturers, such as EMC and IBM. Sun started the consolidation of the SRM market in April 2001 with the acquisition of start-up HighGround's software. IBM Tivoli and EMC purchased SRM companies in September of this year. Tivoli bought Trellisoft, and EMC took over Prisa Networks this year and acquired SoftWorks in 1999.

Other companies have benefited to a lesser degree from the acquisition of SRM companies — Hewlett-Packard, McData, Computer Associates and Fujitsu-Softek have each picked up a variety of SRM start-ups.

"You are going to see further consolidation because the SRM market isn't a business, it's a feature — that function will roll up into higher-level software products like EMC's ControlCenter or CA or BMC," says Steve Duplessie, senior analyst with Enterprise Storage Group.

Analysts also say consolidation is beneficial to customers because those customers now will be able to purchase SRM along with other storage capabilities from the same vendor.

"It's a trade-off between a single vendor and several vendors with different capabilities," says James Gruener, senior analyst for The Yankee Group. "The challenge is choosing vendors that have a strong foundation but also have appropriate add-on products that offer customers additional value for the least amount of money."

As far as consolidation goes, only a handful of independent SRM companies remain — among them are Astrum Software, Teracloud, Tek-Tools and Intermine. ■

Storage management boost

Integration of StorageReporter into Veritas' SANpoint Control enables more complex reporting and analysis. Key features include:

Veritas SANpoint Control 3.5	StorageReporter
Automated provisioning and storage management	Reporting and analysis
Discovery and monitoring of heterogeneous devices	Predictive capacity modeling
Integrates with Oracle, Microsoft Exchange, Veritas and third-party applications.	Quota reporting, charge backs, cost allocation

AOL gateway takes AIM at enterprise market

■ BY DENISE PAPPALARDO

DULLES, VA.— AOL, the largest consumer ISP, launched a product last week that lets business users track and monitor Instant Messenger traffic within corporate networks.

The AIM Enterprise Gateway is the first in a series of AIM Enterprise Services the company has planned. The gateway, which was developed using software from FaceTime Communications, lets users monitor and log AOL Instant Messenger (AIM) traffic that originates from their corporate networks. The gateway sits behind a firewall and acts as a proxy between end users and AOL's network.

"The gateway lets enterprises know what users are using the service for. It maps user traffic, allows for file transfer limits, audits traffic and lets IS managers create a corporate directory of users," says Brian Curry, senior director of strategy development at AOL.

AOL is developing enterprise products because individuals are using AIM over their corporate networks, and more companies are using AIM as a communication tool among employees, Curry says.

According to a study released by Osterman Research in September, 42% of businesses are using instant messaging within their company, sometimes without permission from their IT department. Not all users are sold on the instant messaging. In fact, 23% actively block this type of traffic, and 22% have no plans to use instant messaging at all.

Yet, AOL is addressing the needs of businesses that are supporting AIM in-house. AOL is offering its optional Private Domain Service with "federated authentication," which lets companies create screen identities, or individual usernames, based on their corporate names. A company can create names such as johndoe@acme.com. The Private Domain Service also lets users add or delete screen names at any time.

Federated authentication lets companies encrypt AIM traffic between multiple sites using digital certificates. The only added cost is the fees paid to a third-party digital certificate authority that issues and verifies each certificate. Curry says users can team up with any certificate authority or use the certificate authority services of VeriSign, an AOL partner.

The company also is expected to release an enterprise AIM client that would support end-to-end encryption. AOL is testing the software and expects to release it in the first quarter of next year.

The AIM Enterprise Gateway is available now. Licenses cost $30 to $40 per user. Customers also pay an annual maintenance fee that's based on the size of a deployment.

AIM: www.aim.com

Nortel beefs up portfolio

New 10 Gigabit firmware, traffic shaping switches on tap.

■ BY PHIL HOCHMUTH

SANTA CLARA — Nortel last week released software to support multiple 10G Ethernet interfaces on its core switch, as well as two load-balancing devices intended to increase availability of enterprise data centers and WAN links.
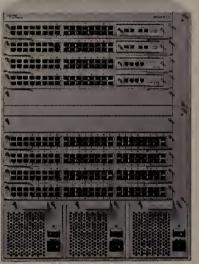
Version 3.3 of Nortel's Passport 8600 software could ease 10G Ethernet deployments by allowing the core switch to be deployed with either WAN or LAN 10G Ethernet modules. Before this upgrade, users could install software to support LAN or WAN 10 Gigabit connections on a Passport, but not both. Nortel also will release its Alteon Application Switch 2224 load-balancing switch and the Alteon Link Optimizer for shaping traffic in data centers and across WAN links.

The new software for the Passport 8600 will let the chassis be deployed either with Nortel's WAN physical layer connection, its LAN PHY module, or both. The WAN module has a serial interface, a range of up to 25 miles, and runs on single-mode fiber. The module is also compatible with an OC-192 infrastructure.

The LAN PHY module has a range of about 6 miles and runs over multi- and single-mode fiber. Previous Passport 8600s could support only one or the other of the two 10 Gigabit PHY modules.

The Alteon Application Switch 2224 is a 24-port Layer 2-7 switch intended to sit in a corporate data center and load-balance devices such as servers,
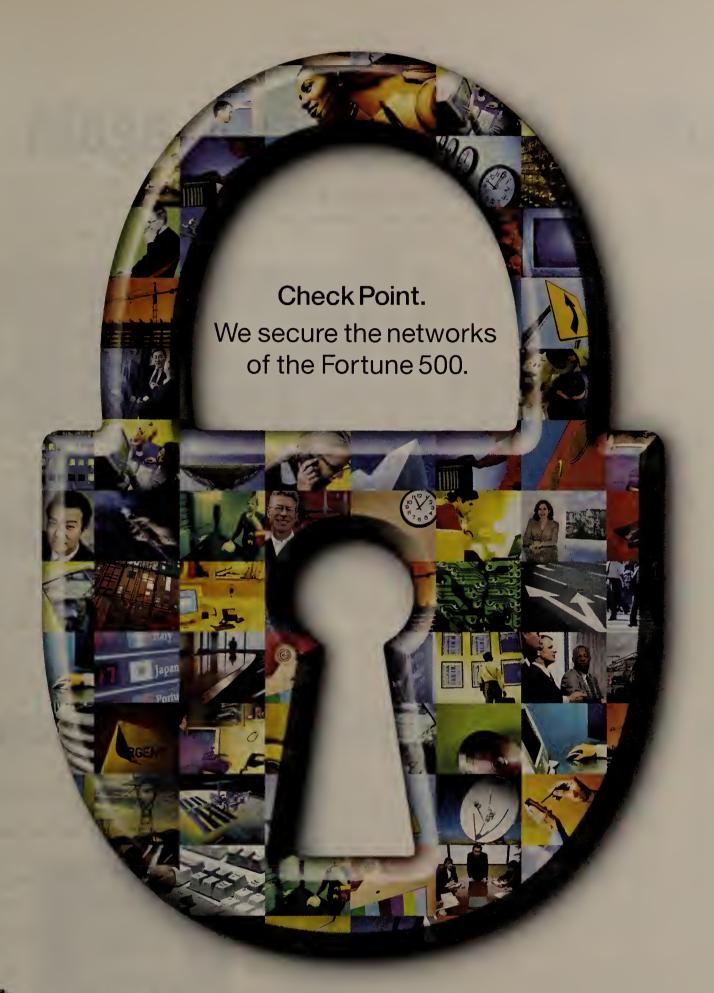

New software for Nortel's Passport 8600 switch allows support for both WAN and LAN 10G Ethernet Modules.

intrusion-detection-system boxes and firewalls. The product, which can handle up to 64,000 concurrent Layer 4 and 50,000 Layer 7 sessions per second, is a lower-end version of the Alteon Web Switch family, which supports more than 100,000 concurrent Layer 4-7 sessions.

For load balancing at the enterprise edge, Nortel introduced Alteon Link Optimizer, a device that sits in front of a firewall and connects to routers that are hooked into multiple ISP or carrier links. The device is designed to redirect application traffic running over WAN links and determine the least congested path for application traffic across multihomed T-1, T-3 or ATM connections.

With its Alteon product line, Nortel has excelled in the market for appliances that direct and accelerate traffic, according to Infonetics Research. The company is among the top-three Layer 4-7 switch vendors, and it led the market for Secure Sockets Layer hardware acceleration devices in the first half of 2002.

The Passport 8600 3.3 software is a free upgrade for customers with existing support contracts. A Passport 8600 switch configured with a 10G Ethernet WAN connection starts at $96,000, and a LAN-configured 10 Gigabit chassis costs $76,000. The Alteon Application Switch 2224 costs $28,000, and the Link Optimizer costs $15,000 for Gigabit Ethernet and $10,000 for Fast Ethernet connections. The two new Alteon products will be available later this month. ■

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VC start-up funding down again

■ BY CAROLYN DUFFY MARSAN

Venture capital investments in network start-ups continued a two-year downward spiral during the third quarter, dropping to the lowest levels since early 1998.

That's the finding of a special analysis of the quarterly MoneyTree Survey compiled for *Network World* by PricewaterhouseCoopers, Venture Economics and the National Venture Capital Association.

The survey found that venture capitalists invested $2.3 billion in 345 network start-ups during the summer, down 21% from the $2.9 billion invested in the previous quarter. The third-quarter investment levels is 86% below the peak of the 'Net investment boom, when venture capitalists poured $16.3 billion into 1,107 network start-ups in the second quarter of 2000.

Software companies continued to dominate investments, representing more than half of the network industry deals completed in the third quarter. The number of software deals was four or more times those completed in other areas, including IT services, network equipment, semiconductors, telecommunications, and computer systems. The most popular areas for software investment continue to be network security and storage.

Experts say the decline in investment in network start-ups is the result of the overall economic downturn, which began in the second quarter of 2000. The third quarter of 2002 was particularly hard hit by stock market volatility,

Network start-up funding hits four-year low

Investment declines 21%, deals down 15%.

Funding in billions

				$16.2													
			$13.7		$14.7												
						$12.7											
		$11.1															
																	Number of deals
								$7.5									
	$5.9								$6.7								
$5.0										$4.9	$4.7						
$3.1												$3.4	$2.9	$2.3			

422	600	673	862	975	1,107	945	906	653	635	542	529	412	408	345
Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3
	1999				2000				2001				2002	

weak corporate earnings, and dormant IPO and acquisition markets.

"Communications companies aren't buying anything," says Tracy Lefteroff, global managing partner of the venture capital practice at PricewaterhouseCoopers. "Corporate capital budgets have been cut. Network equipment vendors are dying on the vine, announcing rolling rounds of layoffs. And I don't think we've seen the bottom yet."

While overall investments are down significantly, 20 network start-ups managed to receive cash infusions of $20

million or more. The largest deal was a $62 million first-round investment in Exigen, a San Francisco provider of business process software for the insurance, banking and government industries.

Other major deals include a $45 million investment in Hatteras Networks, a Durham, N.C., provider of last-mile carrier access platforms, and a $34.6 million investment in Luxn, a Sunnyvale, Calif., maker of optical systems for service providers.

Lefteroff predicts the fourth quarter will see another decline in both the number of deals and dollars invested. In order to see the venture market turn around, Lefteroff says corporate IT spending has to start rising (see related story, page 24).

"We need to see the businesses that have been the buyers of IT and networking equipment start to increase their capital budgets," Lefteroff says. "We need to see the overall economy improve. ... A lot of companies are going to need to see a quarter or two of sustained growth before they're going to want to put their toes back in the water."

Lefteroff also predicts that more venture-funded network companies will go out of business in the next six months as they deplete funds raised during late 2000 and early 2001.

"Companies generally raise about two years' worth of money," Lefteroff says. "I think we'll see a fairly significant amount of shutdowns as companies exhaust all their options, and the venture guys give up." ■

Polycom, Radvision simplify videoconferencing

■ BY JASON MESERVE

Polycom and Radvision are taking steps to simplify videoconferencing for network executives and end users with new products that are more powerful and easier to administer than previous generations.

First, Polycom's new iPower 9000 series expands on PictureTel's work on its iPower 900 series, a line of group videoconferencing units that come with a PC for sharing data and other resources with conference participants, which Polycom acquired last year. The new, beefier 9000 series being added to the iPower line comes in two models: a standard PC implementation (the iPower 9800) and a rackmount unit available to system integrators building custom room systems.

Customers purchasing the iPower 9800 instead of the smaller 900 series get a better-quality camera, and a new keyboard and remote combination that have videoconferencing-specific short-cut keys — zoom, pan and hang up — designed to make the systems more user-friendly, says Ned Semonite, vice president of product management at Polycom.

The rack-mounted iPower 9000 Codec provides all the software technology for conferencing with multiple video and audio inputs, and connectivity to ISDN and IP networks.

Phil Go, CIO for Barton Malow, a construction management firm based in Michigan, is beta-testing the iPower 9800 as part of a custom-built conference room system. His colleagues use the system eight to 12 hours per week to speak with company offices in Virginia and Maryland.

"The wonderful thing about the [new] camera is after a while you don't notice that it's a videoconferencing unit, the technology is transparent," Go says. He says the new wireless keyboard with built-in short-cut keys is also less obtrusive. Before, users had to select commands from a pull-down menu, making it obvious to everyone in the conference what they were doing.

Polycom also says that by the end of this month it will offer a $7,000 optional software upgrade that will let the iPower line support up to 12 videoconference participants at a time, up from the current limit of four or five.

The new 9000 series goes up against Tandberg's recently announced Director, a massive conference room system featuring a 67-inch flat touch screen display.

The iPower 9800 costs $18,000 fully configured, while the iPower 9000 Codec for system integrators costs $14,000.

Looking to "take the science project" out of setting up a videoconferencing network, Radvision has unveiled Invision, a suite of

network appliances that combine multipoint control units (MCU), gatekeepers and gateways in one box. Previously, three separate devices were needed for the functions.

The first product available in the new line is the Invision 100, a 1U (1.75-inch-high) box supporting both IP and ISDN connections, and the ability to handle 12 simultaneous video calls via the built-in MCU and gateway. Gatekeeper functionality lets administrators set up per-call bandwidth limitations, have the system dial out to all participants at the beginning of a scheduled call and monitor ongoing calls. Invision also can show a call layout featuring up to 13 different users on the screen at the same time.

Voice calls also are supported in the Invision line, including H.323-based voice-over-IP calls. Support for Session Initiation Protocol will be available early next year, says David Sokolic, Radvision's vice president of marketing. H.324M support for videoconferencing over 3G mobile networks will be added at a later date.

Radvision, which has OEM deals with the likes of Cisco, is in competition with Polycom's network systems group in the video network market segment.

Now shipping, the Invision 100 comes configured with either four Basic Rate Interface ISDN links or one Primary Rate Interface ISDN link. The Invision 410, a bigger box with more ISDN capacity, will be available in the first quarter of next year. Pricing for the Invision 100 starts at $40,000. ■

Directory

tracts for spelling out obligations of trust and liability.

Bond.Hub is built on a hosted service from vendor Communicator, which uses its Hub ID product to link subsets of the user repositories of the eight bond houses. Former members of the electronic-commerce team at Salomon Smith Barney founded Communicator three years ago.
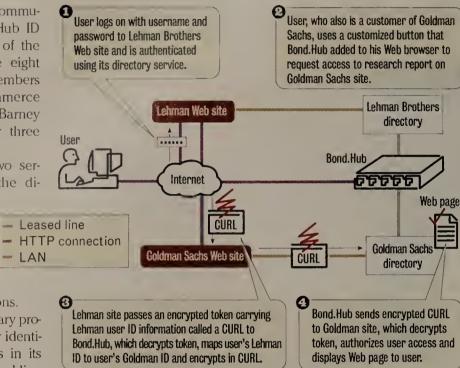
Bond.Hub provides two services: It synchronizes the directories of the institutions, and it acts as a proxy to match identities and pass encrypted credentials between the Web sites of the institutions.

The hub uses a proprietary protocol to synchronize user identities from the institutions in its directory, automatically adding users who establish accounts with two or more of the financial institutions or deleting users who settle on a single account with one institution.

The customers, who are looking for research reports and to buy and sell bonds, include pension

Mutual consent

A consortium of eight financial institutions have created a single sign-on environment called Bond.Hub that lets their mutual customers share information.

❶ User logs on with username and password to Lehman Brothers Web site and is authenticated using its directory service.

❷ User, who also is a customer of Goldman Sachs, uses a customized button that Bond.Hub added to his Web browser to request access to research report on Goldman Sachs site.

- Leased line
- HTTP connection
- LAN

❸ Lehman site passes an encrypted token carrying Lehman user ID information called a CURL to Bond.Hub, which decrypts token, maps user's Lehman ID to user's Goldman ID and encrypts in CURL.

❹ Bond.Hub sends encrypted CURL to Goldman site, which decrypts token, authorizes user access and displays Web page to user.

fund organizations, investment management firms, banks, municipalities and individual investors.

In addition, the hub supports a proprietary security credential, called a cooked URL (CURL), and acts as a proxy that transports encrypted user identity information between the institutions' Web sites and Bond.Hub. Standard credentials, such as Liberty Alliance and SAML, eventually could replace CURL, according to Communicator. .

The hub maps the user's identification from one site to the user's

identification at another site, which guarantees the institutions never see each other's data. And end users need use only a toolbar that Bond.Hub adds to their browser for navigating between sites.

"Before Bond.Hub, users had to have IDs on each site; they had to log in to eight different sites," says Mike Bassman, vice president of fixed-income analytics for Lehman Brothers. Bassman says single sign-on has increased traffic to the company's Web site.

Lehman Brothers joined the Bond.Hub consortium early in 2001, the same year Institutional Investor named the company's U.S. fixed-income research team No.1, and ranked its fixed-income trading No. 2. The Bond.Hub consortium began in 1999 with three institutions and a handful of customers.

But while Bassman lauds Bond.Hub, he says it's had growing pains. Lehman spent nearly nine months linking to Bond. Hub, which is priced a $100 per user, per year.

"Keeping everything in sync with a proprietary protocol requires a bunch of code," Bassman says. "We had to create custom feeds into our [Lightweight Directory Access Protocol] directory. We had to write code to feed Bond.Hub and sync the results through the entire system."

While Bond.Hub shows the promise of creating standards to support federated directories and federated identities, it masks other complexities that will have to be addressed, including contractual matters of trust and liability.

"The Liberty Alliance and SAML standardize the problem of linking identities," says Serge Shinkar, product manager for Hub ID at Communicator. "They provide a flexibility over CURL, but they don't address policies that need to be in place among the business partners. They leave it up to the ID providers to manage trust and establish permissions."

Shinkar says those are the services that Bond.Hub provides.

"The biggest thing is control: Who has control, who has ownership of the information," he says. "You need an infrastructure that your information security people can trust." ∎

Comdex

At Comdex, Buffalo will have a 802.11g demonstration. Sano says companies might hold off on purchases until final IEEE ratification, but he predicts 802.11g will be extremely popular in Buffalo's target markets.

"They will purchase the 11g products right away because they are looking for a faster speed, with a better distance than 11a products today," he says.

Meanwhile, chip maker Broadcom is expected to make an 802.11g announcement at Comdex and demonstrate, with several partners, some early access points and adapter cards. One of those partners is expected to be a major wireless LAN vendor that, like Buffalo, focuses on the small-business and home market.

"With 11g, you can upgrade to 54M bit/sec, get the same range as 11b, leave your existing access points in place and upgrade them to 11a later, when you need the extra capacity," says Jeff Abramowitz, Broadcom's senior director of wireless LAN marketing. "It's a very clean message for network managers."

Complicating factors remain
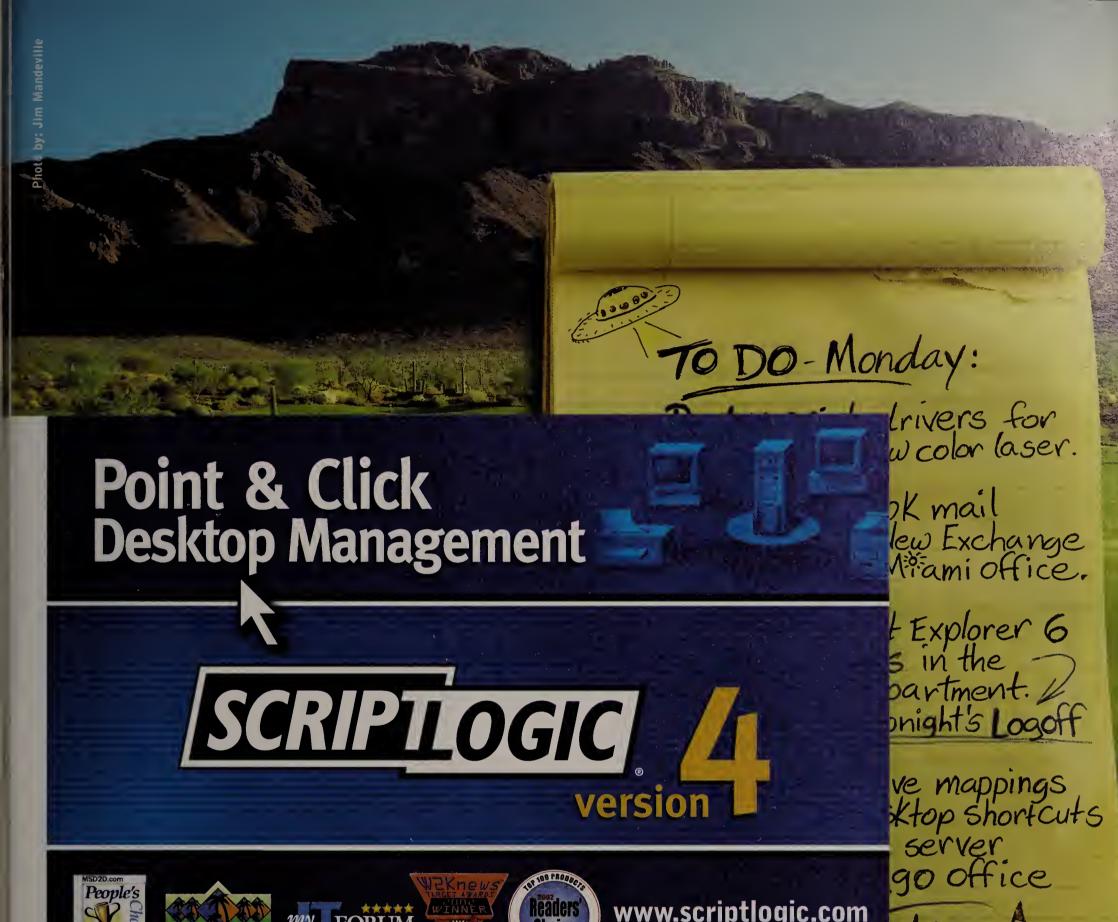
But any number of issues could muddy things.

For one thing, the earliest 802.11g products might not be able to wear the 802.11g label, because the IEEE has yet to put a final stamp of approval on the standard. Several observers say they expect ratification to take place by March.

Also missing will be independent interoperability testing to guarantee that one brand of 802.11g adapter

card will work with another brand of access point, especially if they're using different silicon. The Wi-Fi Alliance (WFA), which certifies wireless LAN interoperability, won't begin testing until after the IEEE ratification. According to a WFA spokesman, 802.11g testing and certification will start in the fourth quarter of next year.

Another complication is the number of channels that the various wireless LAN standards support. 802.11b and 802.11g use three channels; 802.11a uses eight. In practical terms, that means more 802.11a access points can be deployed in a given area, to support considerably more users, than is possible with 802.11b or 802.11g.

Still another drawback is that using the 2.4-GHz band could be as much of a drawback as a benefit for 802.11g. "802.11g does not do anything to mitigate the interference problem experienced by all wireless LANs at 2.4 GHz," Ken Dulaney, a Gartner analyst, wrote in an overview of 802.11g issued earlier this year. "Baby monitors, cordless phones and Bluetooth devices can all interfere with 802.11g, though [Orthogonal Frequency Division Multiplexing] is more interference-immune than other modulation schemes."

Dulaney recommends that network executives keep 802.11b deployment plans in place over the next year at least, as 802.11a products mature, and as 802.11g products enter the market and begin to replace 802.11b. After ratification and interoperability certification, the company then can specify 802.11g instead of 802.11b in requests for proposal.

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Senior Reviews Editor Keith Shaw contributed to this report.

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Start-up buys Shiva name, products from Intel

■ BY TIM GREENE

NEWTON. MASS. — Remember Shiva? It's back.

A start-up making an entry into the crowded field of firewall/VPN appliances has bought the name, logo and two models of VPN boxes from Intel, which has owned Shiva since 1998 when it purchased the company for $185 million.

The new Shiva will sell the two VPN boxes under the names LanRover 3105 and 3125.

It also will sell a VPN appliance called LanRover 1010 it acquired by buying another company it would not name. The products will come with Shiva VPN client software for PCs and management software.

Shiva plans to put out its first new product next year, according to Mark Silverman, the company's COO, but won't detail its product road map for two months.

Frank Rondinone, owner of Access2Networks, an integrator in Toronto, says he has resold and installed the gear since before Intel bought it. He says the hardware and software are stable and reliable, and that the management platform has "great tools" for configuring the gear.

The initial offerings are the same products Intel has sold to integrators and resellers that put their labels on them.

PROFILE: SHIVA	
Location:	Newton, Mass.
Founded:	December 2001
Employees:	43
Key personnel:	Pierre McMaster, CEO, founder of embedded computer maker Kontron
Funding:	Private, includes Intel Capital
Products:	LanRover 1010, 3105, 3125 VPN appliances
Competitors:	Cisco, NetScreen, Nortel, SonicWall
Fun fact:	The company started out with the name Simple Access but waited until it had the Shiva name before making its debut.

Even though the Shiva name was well-known in the '90s, the company has an uphill fight, industry experts say.

"It's tough to differentiate yourself in this market," says Deb Mielke, principal with Treillage Network Strategies.

Silverman gives Shiva a short time frame to make an impact. He says he expects that within three years, there will be two or three major VPN appliance vendors.

Shiva will focus on IP Security VPNs, Silverman says, but the company also has bought firewall and Secure Sockets Layer technology with the acquisition of Galea Secured Networks.

The LanRover 3105 sells for $2,000 and supports 100 simultaneous VPN tunnels, while the LanRover 3125 costs $10,000 and supports 10,000 tunnels. By contrast, Avaya's VSU 100R appliance costs $2,000 and supports 100 tunnels, and Cisco's VPN 3000 concentrator costs $4,000 and supports up to 10,000 tunnels.

While Intel would not reveal the terms of the purchase, Shiva says Intel Capital is one of the backers of the deal. Intel says it maintains equity in the company. ■

I just want to see the personnel files. I just want to see the salary structure. I just want to see.

IT budgets down, but not demand for technology

■ BY JENNIFER MEARS AND
DENISE DUBIE

IT budgets continue to have a rough go of it, although demand for technology is beginning to pick up, according to recent spending surveys.

The surveys — from Gartner and Morgan Stanley — found growing optimism about an economic upswing in the next year and conclude that IT budgets, which faced drastic cuts over the past two years, might return to a growth pattern by the end of next year.

"Demand is increasing and so budgets are likely to catch up ... although it could take six to 12 months to see the spending increase," says Al Case, senior vice president of product development at Gartner and co-author of the Gartner and SoundView Technology Group IT Spending & Demand Survey. "What [CTOs] are finding is that budgets are not growing as fast as the demand or requirement for new technology is increasing."

According to Case, the biggest areas for spending are in security, integration of Web applications, storage and PDAs, and wireless devices. Spending is expected to increase in 2003 on desktop and portable computers as companies look for upgrades, and on in-house application development as the need to integrate applications grows.

Gartner and SoundView surveyed 846 IT users and business executives responsible for more than $33 billion in spending during Gartner's Symposium/ITxpo last month. The survey found that U.S. companies increased IT spending just .36% this year compared with 2001, down from last year's estimate that budgets would be up by 1.5% this year. For next year, IT budgets are expect to stay flat, the survey says.

Financial services giant Morgan Stanley found a similar decline in IT budgets, with 32% of 225 CIOs surveyed revising their IT budgets downward since the beginning of the year. Thirty-eight percent acknowledged downgrading budget forecasts in August.

Morgan Stanley performs its CIO

Priorities, priorities

User demand for new technology, such as applications and storage, is growing despite tight IT budgets.

Applications (CRM, ERP, portals top the list)
39%

Systems (Microsoft [XP migration], hardware [servers and PCs])
21%

Storage (Data center, storage [SAN, NAS, etc.], disaster recovery)
12%

Networking (Infrastructure upgrades, wireless)
12%

Software infrastructure (security, Web services)
9%

Other [infrastructure, operations, outsourcing]
7%

SOURCE: GARTNER AND SOUNDVIEW TECHNOLOGY GROUP IT DEMAND
AND SPENDING SURVEY

Survey Series 10 times per year, and the most recent findings show CIOs plan to spend less. Sixty-eight percent of respondents indicated they would spend the same or less on network equipment in 2003, compared with their spending this year. But 31% said spending would increase in 2003.

Similar to the Gartner survey, Morgan Stanley found that CIOs place application-integration security software and Windows 2000/XP upgrades as their top spending priorities in 2003.

As for the economic outlook, financial services firm Merrill Lynch found that 53% of 100 CIOs surveyed expects the economy to pick up by the end of the second quarter next year. But 47% said they don't expect the economic upturn to happen until the second half of 2003 or later. Ninety-five percent of those sur-

veyed by Morgan Stanley said they expect the economy to recover in 2003, up from 52% who said the same in June. And 75% of Gartner/SoundView respondents said they expect a modest recovery in 2003.

In the meantime, IT budgets will remain tight.

"Things are getting tight with a big push to cut any and all operational expenses possible, without impacting service levels or major integration and [Health Insurance Portability and Accountability Act]-compliance initiatives," says Mark Hoffman, application systems architect at Tufts Health Plan in Waltham, Mass. "Management is looking at everything from who should have cell phones or DSL access, to organizational restructuring to more effectively deploy our soft assets to match our evolving business models.

"It's going to be a pretty interesting 2003," he says. "The push to do more with less is clear."

IT Spending & Demand Survey: www4.gartner.com/1_research analysis/itspending_survey.jsp

XML-based security protocol wins key approval from OASIS

■ BY JOHN FONTANA

An XML-based protocol that is destined to become the building block for corporate user-access security products was approved last week by the Organization for the Advancement of Structured Information Standards.

OASIS stamped Security Assertion Markup Language (SAML) 1.0 as an Open Standard, the group's highest level of ratification. SAML 1.0 is an XML-based framework for exchanging authentication and authorization credentials over the Web. The protocol incorporates other standard protocols, including XML Signature, XML Encryption and Simple Object Access Protocol (SOAP).

SAML promises to give corporations a way to link disparate security systems internally and with business partners. It would let users obtain a SAML "assertion" containing user identity and access controls from one site and use it to gain access to other sites that support the specification.

But more important, it will become the foundation for security services, including a key to

Identity exchange

The Security Assertions Markup Language 1.0, which was ratified last week by the Organization for the Advancement of Structured Information Standards, is a key standard that let corporations share authentication and authorization data across their boundaries.

SAML assertion

User → Server A → Firewall → Server B → Database

❶ **Browser user requesting access to data on business partner site authenticates to Server A within his own company, which creates a SAML assertion that is stored on Server A.**

❷ **User request is redirected to Server B, which receives request with an attachment, called an artifact, that references the SAML assertion on Server A.**

❸ **Server B sees artifact and sends request to Server A to get full SAML assertion.**

❹ **Server B checks assertion and either validates or rejects user's request for access to database.**

building a security infrastructure to support Web services.

"SAML is becoming the consensus standard for network security, identity management, single sign-on and role-based access control," says James Kobielus, an analyst with Burton Group and a Network World columnist. "It is

one of the fundamental specs for Web services security. The same way basic XML was fundamental to developing Web services, most Web services security protocols from here on in will leverage or extend SAML."

Support for SAML in products is already coming from vendors

such as Baltimore Technologies, Crosslogix, Entegrity Solutions, ePeople, Netegrity, Novell, Oblix, OverXeer, RSA Security, Sigaba, Sun and Tivoli Systems.

The Liberty Alliance, which published a specification in July for creating standard network identities, has embraced SAML.

SAML also is being used as part of the WS-Security specification for securing Web services. The specification, developed by IBM, Microsoft and VeriSign, was given to OASIS in June. WS-Security outlines how to integrate disparate security credentials such as Kerberos, public-key infrastructure and SAML, using a set of extensions to SOAP. WS-Security will let Web services pass secure and signed messages.

Work already is under way to build on the 1.0 specification.

Marc Chanliau, senior product manager for XML technologies for Netegrity, who helped develop the protocol, says Version 2.0 will add features for creating sessions that foster secure transactions.

"Today, SAML doesn't tell you when someone logs out," Chanliau says. The session feature

will create a single sign-out technology, he says.

"When a user doesn't sign out, you are left with a dangling transaction, and that is not secure," Chanliau says.

He says he expects the Liberty Alliance to develop extensions to SAML, especially identity attributes that can be used to control a user's access and actions. For example, an attribute might describe a user as a purchasing agent with rights to buy up to $10,000 worth of goods.

"Authorization attributes can be used with rules to control what users can do," Chanliau says. "SAML can make authorization decisions on the fly using those attributes." ■

Corrections

■ In the NetResults graphic of the review on Gigabit intrusion-detection systems (Nov. 4, page 48), as a con to the IntruVert Networks product line, it should have stated that AlertViewer is sluggish under a 100,000-alert load.

Infrastructure

Short Takes

■ **Sistina Software** has developed a clustered file system product called **Global File System,** which lets a single application such as a database run on more than one physical server, and share data and computing resources between those servers as if it were one system. In GFS Version 5.1 for IBM's zSeries mainframe, the software will link an application to numerous virtual servers on the mainframe. Similar software has been a crucial feature in IBM's age-old mainframes, running the OS/390 operating system. Sistina has enlisted Mainline Information Systems, a systems integrator that sells a large number of IBM's zSeries mainframes, to help customers implement the clustered file system software.

IBM makes its own clustered file system software. However, it is more suited for running applications on multiple Intel-based servers, Sistina executives say. Sistina's GFS Version 5.1 for the Mainframe is in beta testing and should be available by year-end. Pricing wasn't announced. www.sistina.com

■ **Dell** recently introduced a server designed for file and print sharing, remote-office deployment and remote management. The **Dell PowerEdge 1600SC,** which replaces the 1400SC and 1500SC, is a pedestal-based server with two Intel Xeon processors. It has SCSI and Integrated Drive Electronics storage options supporting as much as 438G bytes of internal storage and contains hot-pluggable, redundant power supplies and drives. The server contains up to 4G bytes of memory and offers remote management features. The box has an embedded Gigabit Ethernet adapter and can come factory-installed with Windows 2000, Microsoft 2000 Small Business Server or Red Hat Linux. The server has been certified for use with Novell NetWare. The Dell PowerEdge 1600SC starts at $1,000. The 1600SC is available now. www.dell.com

Avaya looks to reinvent itself

Reorganization, new products refresh company's convergence efforts.

■ BY PHIL HOCHMUTH

BASKING RIDGE, N.J. — With its legacy as a Bell spinoff, Avaya has had to fight the image of being a technology dinosaur trying to compete with companies more evolved for the IP infrastructure markets.

In its second year since leaving Lucent, the company says it is refocusing its efforts on converged IP hardware and more flexible software products in areas such as CRM and advanced unified messaging. Recent organizational changes and a few sneak peeks of new converged communications technologies have some observers saying Avaya can compete in the converged enterprise market.

Avaya was the third-leading seller of IP telephony systems (including IP PBXs, IP phones, software and gateway equipment) in the first half of this year, with 8.5% of the market, which is expected to reach $1 billion by year-end, according to IDC. Leading the market was Cisco with 35.6% of the market, and 3Com with 17.8%. Avaya's PBX rivals Alcatel, Nortel and Siemens ranked fourth, fifth and sixth respectively.
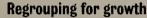
"We were very late to this party," Avaya CEO Don Peterson said of the IP tele-phony market while speaking to a group of Wall Street analysts last month at the company's headquarters.

Avaya debuted its ECLIPS (Enterprise Class iP System) voice-over-IP (VoIP) products in the fall of 2000, while competitors Cisco and 3Com had products on the market a year before. This year, the company debuted its next-generation line of ECLIPS products — the Linux-based S8700 Media Gateway and S8300 Media Server — which have brought the company up to the level of Cisco.

"This is a market space we absolutely have to lead," Peterson said.

Regrouping for growth

As a means to that goal, the company recently realigned itself into four divisions: the Converged Systems and Applications Group, which includes all TDM and IP hardware and software; the Small and Medium Business Group; Avaya Services Group; and its Connectivity Solutions, which includes its cabling business.

Mike Thurk leads Avaya's Converged Systems and Applications Group.

By bringing its PBX and TDM voice, IP LAN switching, VPN, wireless and CRM applications under one umbrella, Avaya now has one sales, marketing, and research and development group responsible for all its large-enterprise products. This is an important step if the company aims to dethrone the likes of Cisco and 3Com from the top of the IP telephony market, analysts say.

"Creating one business unit for both voice and data makes a lot of sense for Avaya," says Brian Riggs, senior analyst with Current Analysis. "It's something they needed to do for a while."

Having all voice and video products under one group will help the company streamline its sales and support operations while letting the company develop better convergence products, Riggs says.

"Avaya has been mixing and matching voice and data products, but they still had separate divisions with different cultures that didn't talk to each other that much," he says.

Sun takes aim at mainframe users

■ BY DENI CONNOR

Sun is luring mainframe customers away from IBM with expanded software and services that the company says let them rehost COBOL and Customer Information Control System applications on less-expensive Sun servers.

The company announced professional services and two software packages — Sun Mainframe Transaction Processing Software 8.0 (SunMTP) and Sun Mainframe Batch Manager Software 10.0 (SunMBM) — that let customers migrate their legacy CICS, COBOL and batch applications to Sun's powerful Sun Fire 12000 or 15000 servers.

SunMTP lets customers reuse transaction-processing applications written in COBOL or PL/1. It includes a VSAM indexed sequential file system and interfaces to DB2 or Oracle databases. SunMBM is a batch job execution system

Big code

Sun claims it has migrated more than

500 million

lines of code off IBM mainframes with its Mainframe Rehosting software and services.

that supports Job Control Language translation and coexisting with Java technology. With SunMTP and SunMBM, applications will require recompiling, but are not run as emulation tasks, thus speeding application performance.

Analysts say that as fewer new applications are being written for mainframes and as fewer experienced mainframe programmers are available, Sun's Mainframe

Rehosting Software is attractive.

"Sun is looking at IT shops that are faced with a decision of staffing, support and application availability as customers for its rehosting products," says Vernon Turner, research director at IDC. "There has been almost 40 years of mainframe application development, and some of those applications are clearly still useful. There's a lot of CICS, for example, still hanging around."

One large insurance company has seen the positive effects of migrating its mainframe applications to Sun Fire servers running Solaris.

Transamerica Life of Canada faced having to migrate a mainframe-based application and data to a Sun platform when it acquired NN Life Insurance Company of Canada.

"We looked at the cost of ownership issues in keeping the mainframe going [forward] and found that the outsource

Server appliances die a quiet death

■ BY ASHLEE VANCE

Vendors selling server appliances promised customers they could have a box up and running in 15 minutes. Well, for the vendors, their 15 minutes of fame are up.

Dell, Hewlett-Packard, IBM and Sun all rode the server appliance bandwagon, billing their special-purpose servers as the quick fix for customers with complex, expanding data centers. The server makers rolled out product after product to fill their appliance arsenal and grab sales ahead of the competition. However, most of these companies have since trimmed their appliance lines with even greater speed and much less fanfare than their product launches.

HP provides the most recent example of an appliance vision gone awry. The company arrived late to the appliance party, bringing out its first products in April of last year. To make up for its late entry into the market, HP unveiled 19 different server appliances for handling everything from caching to application serving and touted strong partnerships with Intel and Inktomi as proof the new product line would thrive.

After completing its acquisition of Compaq in May, HP changed course and killed off both its new appliance line and

an older set of products that Compaq sold under the TaskSmart brand. Experiencing "minuscule" sales with its server appliance products, HP has decided to pitch more general-purpose servers to customers instead, says Hugh Jenkins, vice president of marketing at HP.

"Maybe this was some mismarketing on the industry's part," Jenkins says. "There was an aura that appliances would be simple, like a toaster simple, when in fact, the types of tasks appliances were used for required a hell of a lot of consulting.

"I think we realized pretty quickly into starting to sell the products that the types of applications [appliances] were aimed at did require heavy lifting. I guess we are not the only company that has found that out," he says.

Other companies that ran into lackluster appliance sales include IBM, Dell and Sun — which all made early and aggressive

Hewlett-Packard has axed the Compaq TaskSmart appliance.

For now the Sun Cobalt RaQXTR is aimed at specific applications such as Web hosting.

pushes into the server appliance market.

IBM acquired appliance maker Whistle Communications in 1999 only to retire the products a short time later. Dell launched its PowerApp line in April 2000 and then shelved the systems and now sells appliance software for its mainstream server line. For its part, Sun completed a $2 billion acquisition of appliance leader Cobalt Networks in 2000 to help the company tap the low end of the server market. Sun has since shifted its strategy to focus more on general-purpose Linux servers.

All these vendors say they hoped to cash in on the idea of a fixed function server that shipped with easy-to-use but limited software. If a customer needed to improve network speed, then a caching appliance or load-balancing appliance would do the trick. For those dot-coms with expanding workforces, an e-mail appliance could be the answer.

Marking the need for appliances, IDC wrote at the time of Dell's appliance launch: "While IDC believes that appliance servers will be used for a number of applications, the fastest-growing segments of the market will be for Internet-related activities such as Web serving and caching. We anticipate that each of these categories will represent more than $1 billion in appliance server opportunities by [calendar year 2004]."

Analysts, like the vendors, have pulled back on their forecasts for the server appliance market, saying that customers are looking for general-purpose servers

instead. More flexible servers fit in well with the new network architectures being proposed by IBM, Sun and HP that require applications to be moved from server to server in an automated fashion.

"By and large what we are moving toward is something I like to refer to as a soft appliance," says Gordon Haff, an analyst at Illuminata. "The types of provisioning software being rolled out requires a general-purpose pool of hardware that you turn into special purpose boxes through software. Then, you can change these functions as you need."

Sun's server strategy backs up this claim.

The company will continue to sell its Cobalt products but also has moved the software for these systems to its Sun LX50 general-purpose server. The LX50 runs Linux, an operating system introduced to Sun by the Cobalt team, and the appliance management console, says Peder Ulander, director of marketing for the volume systems products at Sun.

Sun also will release new software packages for its LX50 server next month at Comdex, hoping to provide customers with "appliance-like" general-purpose servers. Still, even Sun, which stands by its appliance line, says its Cobalt Qube and RaQ appliance products might take on a new form. Ulander says the product lines will survive but added that he could not say exactly "what form factor and what direction" Sun might take.

IBM and Dell still sell appliance-like products that are general-purpose servers loaded with various software packages. However, these systems do not resemble the fixed-function boxes promised in the appliance heyday.

Vance is a correspondent with the IDG News Service's San Francisco bureau.

Brocade lands Rhapsody

■ BY DENI CONNOR

Brocade Communications has been rumored to be on the acquisition hunt since Cisco announced its acquisition of Andiamo Systems' director-level Fibre Channel switches.

Last week those rumors became reality as the Fibre Channel switch vendor said it would acquire start-up Rhapsody Networks for $175 million. Rhapsody, while not having announced any products yet, is known to be making director-level switches that will host applications such as virtualization and replication software. Brocade will integrate Rhapsody's applications-based multiprotocol director-level switching technology into its corporate storage products.

"There is increased pressure on Brocade to do more [in this area] and accelerate its technology quickly if it is going to compete against Cisco," says Jamie Gruener, a senior analyst with The Yankee Group.

Brocade leads the market in entry- and midlevel fabric switches, but trails McData and InRange in the director-level area, according to IDC. A year ago, Brocade announced a 128-port director-level switch of its own, which it shipped earlier this year and positions in this high-end market.

However, sources say the company has been more concerned about the effect Cisco's entry will have on the Fibre

Channel market than on shipping products into the director-level arena. Brocade's acquisition of Rhapsody, observers say, reflects a direct reaction to Cisco's entry into a market it plans to dominate.

Cisco started its push into storage networking when it launched its "Storage Networking Initiative" in April 2001. In August, Cisco announced its intention to buy Andiamo, a manufacturer of storage switching products for the storage-area network (SAN) market. That same day Cisco also announced that Andiamo's family of multilayer intelligent storage switches for SANs, expected to begin shipping before year-end, will carry the Cisco brand, and be known as the MDS 9000 family.

"Cisco will offer incentive programs and affect when customers purchase additional storage network gear based on the fact that a lot of customers are waiting for Cisco's products to come to market and be certified with storage OEMs," Gruener says.

As the result of the acquisition, Brocade will market what it calls "application switches" — Fibre Channel switches that work with software and hardware from OEMs and software vendors that allow the hosting of storage management, replication and data management applications.

Brocade estimates that customers will be able to purchase products resulting from the acquisition by the end of 2003. ■

Sun

[arrangement] was something we didn't have to afford on an ongoing basis," says Naj Hirani, CIO for Transamerica.

"Our vision was to integrate application systems and consolidate technology platforms to achieve cost-effectiveness, as well as better align application systems to support the Life and Investment products' back-office operations," Hirani says.

"Regardless which of the available alternatives was chosen — either outsourcing to another vendor or acquiring and implementing a mainframe platform in-house or rehosting the application on to another platform; together with reducing costs — it had to be seamless to the business users [meaning no change to the system and features]," he says.

Hirani signed up with Sun for its mainframe rehosting products to assist in the

migration of the mainframe applications and data.

"When we compared our systems operation costs of the mainframe vs. hosting the applications on the Sun platform, we achieved upwards of a 50% cost savings."

Sun has added authentication-based security to the products and the ability to cluster servers with Sun Cluster server clustering software. Further, it has increased the interoperability between Enterprise Java Beans-enabled and legacy applications. The software now can be managed from any point on the network.

The company says that while its software is unique for the Solaris platform, there are a few rehosting packages for the IBM zSeries servers. The company says emulation programs are available from vendors such as Acucorp's Acucobol or Century Software's emulation tools.

The software can start for $100,000 and is available now. ■

So many network applications.
So little throughput.
It's time for Gigabit to the desktop.

The surge in network applications has caused bottlenecks on desktops everywhere. The solution? Help your organization tackle all those network backups, remote software distributions and massive file downloads by providing an equally massive increase in throughput. With the Intel® PRO/1000 MT Desktop Connection, you'll benefit from 10 times the throughput. Other advantages: a Gigabit connection works on an existing 10/100 Mbps Cat-5 network, and will seamlessly ramp up to 1000 Mbps. When this Gigabit connection is combined with the Intel® Pentium® 4 processor, studies have demonstrated a significant boost in desktop performance. Intel, the leader in desktop connections, makes multi-tasking less of a task — cost-effectively and without any need for expensive rewiring. Intel® PRO Network Connections. **The intelligent way to connect.**

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For a trial kit, product and test information: www.intel.com/go/desktopgig

Re-engineering for today's enterprise demands

The relationship we enter into with our network equipment suppliers can, and sometimes does, resemble a marriage. Indeed, some of us might be guilty of keeping our eyes open before the marriage, and half shut afterward, as Ben Franklin used to say.

Our vendor "partners" got busy churning out products that we burned money on in order to plug into our enterprise networks because we bought into their plans. Left out of the equation was any internal analysis of what problem the product solved or what specific network conditions we sought to improve based on performance measurements. Network infrastructure became a moving target because of these rapid deployments, and we amassed little real in-depth network knowledge.

Starting next week in suburban Boston and continuing in five other cities (New York, Chicago, Washington, D.C., San Jose and Long Beach, Calif.) across the country into December, The Tolly Group and *Network World* will co-host our annual State of the LAN seminar series. During this seminar we will explore today's enterprise network demands and how IT organizations can re-engineer their practices to position themselves better to provide superior network services. (Check out our agenda and sign up for this free event at www.nwfusion.com, DocFinder: 3050.)

One key point I will discuss lends itself to the vendor marriages you might have in place. Given the current economic climate, vendors no longer can push product on companies. Enterprise network executives must assess their immediate and long-term needs, and vendors must earn their way into the network by providing the "right" solution.

That's no small feat for network executives. It means rediscovering your network, knowing what you are looking for in products and understanding how to determine if it exists.

Rediscovering your network means you've got to invest some time understanding its operational characteristics. How many errored frames are common in your transmissions? What are the network choke points? Where and when do you experience spikes in usage, and how does the network respond? What are your application characteristics, and can the network support them adequately?

In this new discovery mode, structured benchmarking is essential. The structured approach that I'll discuss at State of the LAN is applicable to any technology, and the aim is to isolate specific elements of the network and pinpoint performance. But to do that with success, you'll need to follow a handful of basic principles:

● Establish testing goals. It is important to identify the devices to be tested, but more so, identify the trade-offs between what data is "doable" to collect and what is desirable.

● Implement a test design methodology. Here you need to profile the major elements to be tested and develop/determine the appropriate criteria for evaluating them.

● You'll need to conduct prototype testing and validate your results. This means building a viable test bed and creating prototypical tests to ensure that results are meaningful and insightful.

● Production testing comes next. Here you capture, compile and record raw data.

● Finally, you document your data and analyze it.

At our State of the LAN events, you'll hear representatives from leading companies such as Cisco, Alcatel, Extreme Networks, Foundry Networks and Finisar discuss the latest trends in IP telephony, security, 10G Ethernet, quality of service, storage networking and more.

Learn how these technologies all can be measured and analyzed so that you maintain those vendor marriages with eyes wide open instead of half shut.

Tolly is president of The Tolly Group, a strategic consulting and independent testing company in Manasquan, N.J. He can be reached at ktolly@tolly.com.

Avaya

With its combined voice/data/applications group, the company will take a different approach to its LAN switching and data infrastructure products, according to Mike Thurk, vice president of Avaya's converged systems and applications group.

"Switching is an important element of an IP infrastructure," he says, but he adds that Avaya will refocus its research-and-development investments in some areas of LAN.

Thurk says new developments in Avaya's Cajun line will focus on technologies that enable IP telephony and convergence, such as power over Ethernet and quality of service, rather than matching products feature-for-feature with competitors that compete solely in the LAN switch market.

According to IDC, Avaya ranked 11th in the $15 billion LAN switching market last year with 1.4% of total worldwide revenue. While LAN switch products raked in $212 million in revenue for the company in 2001, that figure accounts for only 3% of Avaya's total revenue in 2001.

Avaya already has integrated its LAN technology into VoIP gateways, such as its S8700 Media Gateway. Thurk hinted that in 2003, other telephony-like features and functions would be integrated into Cajun products, such as distributing directory information stores or even call-processing functions out to wiring closet switches.

Avaya's to-do list
Some things Avaya must do to keep competitive in the converged enterprise market.

Capitalize on its installed base: Avaya has the legacy of being the leading TDM voice vendor from its days as the enterprise telephony products and services arm of Lucent. This represents thousands of potential IP voice customers.

Transform services division: With Avaya's extensive services group, the company has some 2,500 technicians who could be used in a more network consultant role.

Do something in data: Avaya must boost the visibilty of its datacom products, which have garnered praise from users, but made little market impact.

Opening up applications
Avaya's application and software roots are in the world of proprietary operating systems, TDM and circuit switching. But the company says technologies such as Java 2 Platform Enterprise Edition (J2EE), Web services such as Microsoft .Net, and open standards such as the Session Initiation Protocol will be major pieces of Avaya's telephony applications. Users could expect to see products incorporating these technologies starting in the first quarter of 2003, according to Karyn Mashima, senior vice president, strategy

and technology at Avaya.

Avaya will open its APIs for its Multivantage call-processing software, which runs on its proprietary PBX Unix flavor, Intel-based Linux and Windows NT/2000.

"We're breaking down our software products into reusable software modules," Mashima says.

While Avaya's existing product line of CRM, call-processing and messaging applications will stay on their respective platforms and development environments, she says, "all new applications will be developed in J2EE."

As part of this strategy, Avaya is developing what it calls the Communication Application Server, which would run on top of a J2EE or .Net platform. From this platform, Mashima says, applications such as call processing, voice and e-mail messaging, instant messaging, and call center and CRM software can be developed and deployed. Mashima says an upcoming version of Avaya's CRM and contact center suite will be based on IBM's Websphere application server.

"Think of running a Multivantage PBX from a BEA application server," Mashima adds.

Other products Avaya will roll out in 2003 include areas such as presence and personal workspace technologies, Mashima says. Personal workspace technology will involve the integration of cellular, wireless LAN and Bluetooth technology in IP desk handsets, wireless handsets that could let end users move from a cell phone to an office phone while transferring the call between devices without interruption.

At your service
Avaya says it will work on transforming

its services division, with more than 2,500 technicians, into more of a consultancy-style of operation instead of a fleet of "phone guys" in white vans. Most known for its PBX phone maintenance services in companies, Avaya's services business brought in about $2 billion in revenue (equal to its hardware and software revenue combined) in its 2002 fiscal year, which ended in September.

Beyond its PBX maintenance business, Avaya recently added assessment services for companies in the areas of IP infrastructure security, VoIP and convergence. The company is looking to add outsourced or managed telephony services, comparable to a WorldCom IP Centrex service, in the coming quarters.

"Avaya is taking its support group and turning it into a services group, which is interesting," Current Analysis' Riggs says. He says that with the tumult among carriers offering IP services, a managed telephony service based on Avaya equipment could be successful.

"They certainly have the technicians and workforce to do it," Riggs says. "It will be interesting to see if they can pull it off." ■

Net.Worker

New spins on work/life balance

Three firms offer clever remedies for traffic congestion and remote worker isolation.

■ BY TONI KISTNER

By now, practically anyone you ask can name at least two or three benefits of telework. Although it's a great way to improve worker productivity, reduce company costs, and decrease traffic congestion and car emissions in one fell swoop, telework doesn't suit every situation. Three companies —ProximateCommute, Zipcar and SOS Network — have looked beyond the home office to develop alternative and complementary solutions to "traditional" telework.

Swapping jobs

What if your company offered you the same job with the same pay with half the commute? That's the idea behind ProximateCommute, a firm that helps companies with multiple locations rearrange their employees so they work at the branch closest to home.

Gene Mullins first came up with this simple concept while sitting in traffic on Interstate 5 in Seattle in 1992. "I was watching people driving in opposite directions to do similar jobs. So I went to a local bank, got the ZIP codes for the employees of three branches and plotted their commutes manually. I was right. Only 17% of employees worked at the bank branch closest to home."

When Mullins started pitching his idea to Seattle-area companies, he thought middle managers would be the hardest sell, assuming they'd argue that they work hard to get teams to work well together. But in fact, they wanted it most. "They're the ones dealing with employees who are unhappy, who are late, who quit, and who need to take a full day off to take their kids to the doctor. They understood immediately the value of having employees working close to home," he says.

Although Mullins won't offer details, he says he's putting the finishing touches on ProximateCommute Online, a systems-based application that lets employees log on and search for similar, shorter-commute jobs with the same employer. The program maps and details their current commute time, distance, cost and pollution generated, and compares those with the shorter commutes identified by the program.

ProximateCommute is an excellent solution for workers who can't do their jobs at home. Mullins' first clients were Puget Sound Bank and Key Bank, which merged during this project. Even with internal turf struggles, Mullins says he decreased employees' commute times by 65% (for those who relocated), and for all the 30 sites by 17% overall. Since then, Mullins has done feasibility studies for cities, departments and agencies in Washington and other states that have uncovered startling results. For instance, in one West Coast city, only 4% of firemen work at the firehouse closest to home; only 11% of library employees, and just 27% of Starbucks' employees worked at their respective jobs' closest location.

Besides saving time that can be better spent with family, the program also puts money in the pockets of employees. At Key Bank, each employee saved $2,600 per year, 300 gallons of gas, 6,000 pounds of carbon dioxide (see graphic, right).

Today, Mullins is in frequent discussions with the Environmental Protection Agency and the Department of Energy, which is interested in lessening U.S. dependence on foreign oil. ProximateCommute also has potential to strengthen national security — in an emergency, people could get home more quickly because there would be fewer cars on the road.
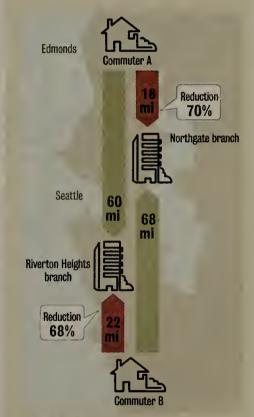
Driving without a car

One of the benefits of living and working in a big city is often you can do without a car. For many, shedding the responsibility and cost of maintenance, upkeep, insurance and parking more than makes up for the inconvenience of relying on mass transit, cabs or walking. Yet, there are always times when you need or want a car — whether to visit a client, friends or family just beyond mass transit, or partake in the joys of megasupermarkets and home improvement stores on the outskirts.

Zipcar offers a solution. Launched in

Trading places

Two Seattle-area bank tellers saved time, money and gas when they traded comparable jobs and work sites through the Proximate-Commute program.

Distance in miles
■ Commute before Proximate
■ Commute after Proximate

Combined annual savings for both commuters.

Commute miles (round trip)	20,700
Commute expense ($0.33/mi.)	$6,800
Gas (gallons)	860
Auto emissions (pounds)	1,140
Carbon dioxide (pounds)	16,400
Commute hours	595

SOURCE: PROXIMATECOMMUTE

Short Takes

■ **NetGear** last week announced wireless carrier T-Mobile will begin bundling its 802.11b wireless PC Cards (MA401) as part of T-Mobile's HotSpotSM service. Customers will buy the NetGear cards at T-Mobile retail stores ($80), and upon installation, enter T-Mobile as the network name, and sign on to activate service. Pricing plans range from pay-as-you-go and prepaid models to traditional monthly subscriptions costing $30 per month and $50 per month. www.netgear.com; www.tmobile.com

■ Long known for its **MacIntosh** security products, **Intego** recently announced **NetBarrier 2003**, consumer desktop security software for Windows PCs. NetBarrier includes a firewall; anti-vandal features that block ping attacks, port scans and other intrusion attempts; data, ad banner and surf filters for privacy protection; and application filters for blocking instant messaging. Other features include detailed logging and alerts, traffic and network monitoring and automatic online updates. NetBarrier is available via download or in retail stores for $50. www.intego.com

■ In a move that's expected to speed time to market for **CableHome 1.0** residential gateways and broadband routers, **Jungo Software** recently announced **OpenRG 2.1,** a new CableHome 1.0-compliant version of its software platform. Hardware vendors will build Jungo's OpenRG 2.1 into their devices, which service providers will offer to their customers. Once in place, CableHome 1.0 devices will let providers offer, deliver and manage myriad applications over customers' broadband connections. www.jungo.com

■ In the emerging connected home, wireless technologies will dominate, and Wi-Fi (802.11b) will lead the pack, says a new report from **In-stat-MDR.** "Wireless Cribs: Living Large with a Wireless Home Network" predicts worldwide Wi-Fi shipments will reach 33 million by 2006, up from 6 million today. But Wi-Fi's lack of multimedia support (including quality of service) gives ultrawideband technology an opening, as well as new technologies such as **Zigbee,** designed for home automation of lighting and security, and **Spike,** a technology built for video game controllers. Mesh peer-to-peer technology also might be used to extend the range of wireless LANs.

EasyVista tailors asset mgmt. app to teleworkers

When it comes to asset management, most large shops either rely on existing network management tools, or opt for products from Tally Systems, Tangram and others. The trouble is, such systems rely on a client connection to the network to deliver the information collected on the PCs. What if your users are remote? Worse, what if they never connect to your corporate network?

Technology consulting company Experio faced just such a problem. Of its 1,000 employees, nearly all (save for office-based administration and IT) are mobile, spending their days at client sites or on sales calls. "We're only making money when people are out in the field," says Michael Shisko, Experio's director of IT.

Because many Experio employees never logged on to the corporate network, Shisko sought an asset management tool that didn't rely on a network connection to trigger an inventory. That's where EasyVista came in. A Web-based service, EasyVista is server-based, so there's no software to install on the client systems. A small server agent (or batch file) is downloaded once, then the start of each month triggers an inventory. The agent collects all system information, including hardware, peripherals and software applications. Then the next time the user boots the system, the batch file looks for inventory files, and upon finding them, brings up a Web page prompting the user to send the inventory file to EasyVista's network.

On the administration side, the network executive logs on to the EasyVista Web site

> **What if your users are remote? Worse, what if they never connect to your corporate network?**

to view the inventory information. There, he can download inventory and change reports as PDF files and Excel spreadsheets. The inventory information is sent as an encrypted file from the user's PC to EasyVista's network. No data is sent through the firewall in real time.

"We use it primarily to keep track of hardware," Shisko says. Because Experio leases all its computers from Dell, it needed an easy way to match users with serial numbers and cross-reference them with lease

expiration dates.

Another good use of the service is to monitor which software programs are installed on remote workers' systems. The service recognizes more than 10,000 software titles, and the company adds an average of 10 to 12 new titles each day, according to Ray Hoffer, vice president of sales.

Geared toward smaller companies or those with a dispersed workforce, EasyVista is very low-priced. The EasyVista Premium version costs $6 per year per PC. With it, you can download as many as 16 inventory reports via PDF. The new version, EasyVista Discovery, uses a Web-based interface that lets you conduct complex searches, view more detailed inventory, and large reports detailing hundreds of PCs without the hassle of downloading spreadsheets. EasyVista Discovery costs $12 per PC.

Kistner is managing editor of Net.Worker. She can be reached at tkistner@nww.com.

Balance

2000, the Cambridge, Mass., start-up provides self-service, short-term car rentals in Boston, New York, and Washington, D.C. Zipcar members simply log on to the Zipcar Web site, reserve the specific car they want, where and when they want it, then head to the parking lot where the car is. (Zipcar parks cars in various lots throughout its market cities.) The user approaches the car, presents his Zipcar smart card (or Zipcard) to the smart card reader mounted inside the windshield, and upon verification, the Zipcard opens the doors and starts the car (see graphic, right). When users are through, they simply return the car to the lot and their account is billed automatically.

"It's like what your mother said you couldn't have in life: Your own car without all the responsibility," says Zipcar CEO Robin Chase. "It's like your dream car."
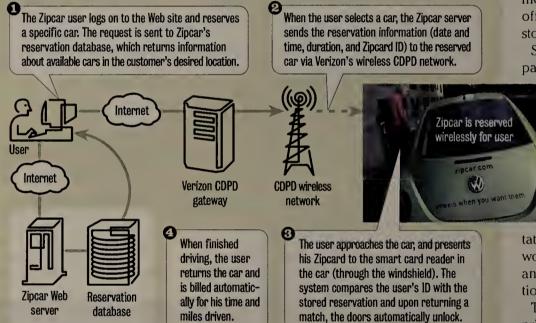
The Zipcar network uses Verizon's cellular digital packet data (CDPD) network to communicate between the company's reservation server and the cars. In addition to the smart card reader, the car has a "proximity reader" that includes a modem and antenna to communicate with the network. Zipcar plans to replace its CDPD component with a newer and faster general packet radio service (GPRS) network in the coming year.

Zipcar has 4,500 members and a fleet of 160 cars parked in 150 locations. Depending on the city, Zipcar service costs from $5 to $14 per hour and 40 cents per mile. You can either commit to driving a minimum of $30 per month and pay no annual member fee, or pay $75 per year and not worry about minimum usage.

Ten percent of Zipcar's members are self-employed, one-third work in the professional services industry, and 10% work in science and technology. While city dwellers use it to avoid owning a car, many subur-

Wheels when you want them

Zipcar provides members with self-service, short-term car rental.

1 The Zipcar user logs on to the Web site and reserves a specific car. The request is sent to Zipcar's reservation database, which returns information about available cars in the customer's desired location.

2 When the user selects a car, the Zipcar server sends the reservation information (date and time, duration, and Zipcard ID) to the reserved car via Verizon's wireless CDPD network.

4 When finished driving, the user returns the car and is billed automatically for his time and miles driven.

3 The user approaches the car, and presents his Zipcard to the smart card reader in the car (through the windshield). The system compares the user's ID with the stored reservation and upon returning a match, the doors automatically unlock.

User — Internet — Verizon CDPD gateway — CDPD wireless network

Zipcar Web server — Reservation database

banites use it to avoid driving their own car into the city.

Members are using the service in creative ways. For instance, teleworkers who spend one day in the office use the Zipcar service to get there. One member runs a café and bakery and uses Zipcar to make her deliveries and to transport ingredients, and medical students use it to shuttle back and forth between hospitals and labs.

Chase expects Zipcar's membership to increase to 6,000 members next year. Although the company has no plans to expand beyond its three-city range, the mayor of Hoboken, N.J., approached Zipcar to help him deal with traffic congestion, and university towns such as Princeton, N.J., are expressing interest.

Smarter telework centers

Although slow to catch on, the idea behind telework centers is clever. Rather than

suffering a long commute to the office, work in an office setting closer to home, where you benefit from a supported network infrastructure and share the society of other teleworkers.

Matt Cereno took the idea to the next level by bringing home-based sales representatives from various software companies under one roof. There, they're managed by Cereno's company, SOS Network, enjoy administrative and support services, and are trained to sell their products, collaborate, share leads, and even mine leads for each other.

Two work experiences combined guided Cereno to the idea of SOS Network. For years, he worked as a regional sales manager for Ingram Micro, where he managed 20 software vendors, all of whom worked independently. Next, Cereno took a job for a U.K. company, and became the firm's lone U.S. sales presence.

"I had no access to anything. They were in the U.K. I had no administrative support, had to handle all the marketing, write my own proposals, make sales calls, travel to meet clients. Each time I stepped out of the office, all forward-moving behavior stopped right there," Cereno recalls.

SOS Network's first client was a company that had hired several dozen sales representatives to work alone out of their home offices; the idea being that each home office would expand the company into a new territory. However, the sales folks felt isolated, missed the office life, and failed to thrive. And management had no way of knowing what the sales representative was doing, being remote. SOS Network came in, brought everyone together and took over all aspects of administration and management.

Today, SOS Network focuses on enterprise software vendors only. SOS can take as much or as little control over the employees as the client wants, Cereno says. The Los Angeles company plans to open eight offices across the country in the coming year.

Each office will house sales representatives from as many as 15 software vendors. Some of SOS Network's clients are large companies, such as Symantec, which use the firm to train salespeople on rolling out a new product line. However, the company targets small companies poised to expand their territories.

Cereno has a soft spot for start-ups, typically run by engineers who have no idea how to sell product. "That's what we do. We're here to sell, to make money," Cereno says. ■

"To meet ever-increasing demand for our online products and services, Toyota turned to Akamai to instantly extend the scale, performance and reach of its infrastructure at a fraction of the cost associated with traditional build-out."

—Barbra Cooper
Group Vice President and CIO
Toyota Motor Sales, U.S.A., Inc.

Toyota is driving down the cost of e-business.

Akamai Gives Toyota Motor Sales the Competitive Edge.

When Toyota launched a series of online marketing initiatives to promote new vehicles, consumer traffic to its sites began to multiply. To meet the needs of its growing audiences without over-provisioning its network, Toyota turned to Akamai. Our distributed content delivery approach helps Toyota maintain top site performance. By extending its infrastructure to the edge—closer to customers—Toyota gains efficient, reliable delivery of highly interactive information, such as sales and marketing campaigns, while maintaining control and significantly reducing infrastructure costs.

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Short Takes

■ **IManage** has unveiled the latest version of its collaboration and content management software. The new package features tight integration with **Microsoft Office,** and advanced workflow capabilities. With **WorkSite MP 3.0** users can create content within Microsoft Office programs such as Word, Excel and PowerPoint, and then save that content directly to the iManage repository for management and collaboration. A key feature is WorkSite MP 3.0's integration with Outlook. For many companies, e-mail is the preferred method of collaboration and iManage's new software lets users save e-mails and attachments in iManage repositories. Base pricing for WorkSite MP 3.0, which is available now, starts at $15,000 per server. www.imanage.com/products/worksite_mp.html

■ **Microsoft** has released new tools for its **SQL Server** database that should make it easier for customers to create data analysis applications for financial services and manufacturing industries. Microsoft last week released two new templates for its SQL Server Accelerator for BI, a rapid application development tool that automates some of the low-level programming work required to build analytical applications, often referred to as business intelligence applications. The templates add support for financial services and manufacturing companies, and follow similar templates released in May for retail and sales and marketing. The idea is to help customers make use of information stored in their enterprise applications that could help them make better business decisions. The templates make it faster and easier to build applications that analyze such information, Microsoft says. The templates can be downloaded from Microsoft's Web site at www.microsoft.com/solutions/bi/, although the company suggests that customers work with one of its partners if they don't have experience building business intelligence applications.

Patch mgmt. packages proliferate

■ BY JOHN FONTANA

Patch management remains a major headache and money pit for network executives and can no longer be handled by manual processes, according to experts.

This week, BigFix and ConfigureSoft will release upgrades to their patch management tools for Microsoft software aimed at helping network executives efficiently run patch management over distributed networks. Vendors such as Loudcloud, St. Bernard Software, Shavlik Technologies, Ecora, Aelita, PatchLink and Ponte also offer patch management tools.

"Patch management is extremely complex," says Michael Rasmussen, director of research and information security for Giga Information Group. "It is still in the early adopter phase, and many people are still trying to do it through a manual process."

But with the proliferation of vulnerabilities on the Internet, that is no longer a workable solution, experts say.

"Patch management is viewed as a best practice to be done when time permits," says Eric Hemmendinger, an analyst with Aberdeen Group. "But no one ever finds the time. With automated tools, that might change."

That change could go a long way to preventing many security breaches. Gartner reports that more than 90% of security exploits are carried out through vulnerabilities for which there is a known patch.

BigFix will unveil its Enterprise Suite 1.3, which includes a set of administrative tools to ease automated deployments of patches. The suite also incorporates support for distributing updated virus definition lists in addition to patches for Microsoft software, and adds a number of reporting controls for discovering what is installed on network clients and servers, including those running Linux.

ConfigureSoft will release Security Update Manager 2.0, which includes tools for quickly assessing which machines need new patches and administrative tools for controlling who can install them. The software runs on top of the company's Enterprise Configuration Manager and relies heavily on that product's database of information.
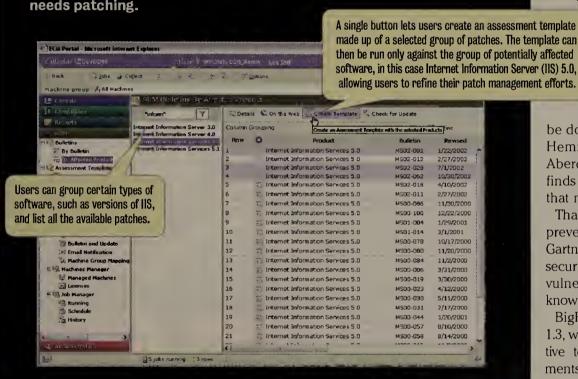
"It is the volume [of patches] that has become unmanageable," says Jon Speer, IS director for TripWire, which develops software to ensure data integrity. He says the company does not have the resources to dedicate to patch management.

Microsoft this year has issued 64 patches, but the patches are coming from most suppliers of network equipment and enterprise-class applications, according to vulnerability lists maintained by the

Template creator

ConfigureSoft's Security Update Manager 2.0 lets administrators create templates of like machines to speed the assessment of which software needs patching.

A single button lets users create an assessment template made up of a selected group of patches. The template can then be run only against the group of potentially affected software, in this case Internet Information Server (IIS) 5.0, allowing users to refine their patch management efforts.

Users can group certain types of software, such as versions of IIS, and list all the available patches.

Nokia, Trend Micro team on content security

■ BY PAUL ROBERTS

Nokia and software maker Trend Micro announced an alliance last week to produce a corporate e-mail security appliance that joins Trend Micro's antivirus technology to Nokia's hardware and software.

Called Nokia Message Protector SC6600, the new gateway appliance will analyze inbound and outbound e-mail traffic, according to Dan MacDonald, vice president of product management and marketing at Nokia Internet Communications, a division of Nokia.

"Eighty-seven percent of all exploits enter a network through e-mail," MacDonald says. "Companies have firewalls in place, but there's a river running under that firewall called e-mail, and it has a lot of nasty things in it."

According to Nokia, inbound e-mail and Simple Mail Transfer Protocol traffic will be directed to the SC6600 from a corporate firewall. For each e-mail message directed to it, the SC6600 gateway will set aside a copy and break that message into its constituent elements. The SC6600 then analyzes the message, any attachments to the message, and elements such as macros and message fonts.

Each component of an e-mail is processed by Nokia's statistical inspection engine on the SC6600. If a virus or exploit is

Microsoft shakes up SALT offerings

■ BY CAROLYN DUFFY MARSAN

An emerging standard called Speech Application Language Tags received a boost last month when Microsoft announced several efforts to beef up its support for a specification that enables speech interfaces to Web information.

An extension to HTML, Extensible HTML and XML, SALT is designed to make it easier, faster and less expensive for developers to support spoken interactions with Web pages. A company could use SALT to create a CRM application that would let the salesforce access or update customer data over cell phones.

Under development by the World Wide Web Consortium (W3C), SALT supports so-called multimodal applications that let a user interact with a Web site using a keyboard, mouse, stylus or speech. With SALT, these modes can be used independently or concurrently.

The creators of SALT are the SALT Forum, an industry group led by Microsoft, Intel and Cisco that includes more than 50 network vendors. Over the summer, the W3C agreed to develop an open, royalty-free standard for SALT.

Last month at the SpeechTEK conference in New York, Microsoft released a new beta-test version of its .Net Speech Software Development Kit (SDK) that supports the version of the SALT specification pending

SALT products proliferate

Speech Application Language Tags are supposed to make it easier for customers to voice-enable Web applications. Here's a look at some companies offering SALT products:

Company	Product	Description
Hey Anita	FreeSpeech SALT Platform, Browser and pre-packaged applications.	Platform supports SALT, VoiceXML and Java. Also sells general-purpose apps including voice access to e-mail.
Intervoic	Omvia Platform, InVision Devm't Environment	Both products use Microsoft's .Net Speech SDK.
Kirusa	Multimodal Platform	Platform for wireless service providers that supports use of voice and visual interfaces.
Microsoft	.Net Speech SDK Beta 2.0	Free, downloadable software supports W3C SALT 1.0 spec.
Philips	SALT Browser	Built-in Java 2 and ECMA Script platform independent.
Vocalocity	Voice Gateway 2.0	Interpreter supports SALT and VoiceXML.

before the W3C and the W3C grammar formats. The new SDK also features prebuilt controls that make it easier for developers that don't have experience creating speech applications. Microsoft shipped the original .Net Speech SDK beta in May.

"You can absolutely create a deployable application with this version of the SDK," says James Mastan, director of marketing

for Microsoft's .Net Speech Technologies Group. "You could create telephony applications or multimodal applications."

Microsoft also announced a technical preview of its .Net Speech Platform, which can be used to deploy telephony and multimedia applications based on SALT. The platform includes Microsoft's speech recognition engine, a text-to-speech engine

from SpeechWorks, Microsoft's SALT interpreter and telephony integration software.

In other SALT-related news, Microsoft announced a joint development program for its .Net Speech partners and enterprise customers to foster the creation of SALT-based applications.

By the end of next year, Microsoft plans to announce a generally available release of its .Net Speech Platform along with supporting applications in such vertical areas as unified messaging, travel and financial services, Mastan says.

"The belief at Microsoft is that speech is going to be the next primary user paradigm," Mastan says. "If you think of it in that context, it cuts across all applications. But some applications seem more appropriate to be the early adopters like interactive voice response, call centers and CRM. As time goes on, speech will become more mainstream."

Meanwhile, the W3C continues to make progress on the SALT specification. The W3C's Multimodal Interaction Working Group is finishing its requirements and then will discuss SALT in terms of these requirements, says Dave Raggett, a W3C fellow who leads the working group.

"There is considerable interest in multimodal interaction," Raggett says. "Many of the companies in the SALT Forum [including Microsoft] are also involved in the W3C multimodal interaction working group." ■

Funk, Interlink improve wireless LAN authentication

Companies look to simplify wireless administration by adding TTLS support.

■ BY ELLEN MESSMER

Funk Software and Interlink Networks have each added support for a proposed wireless LAN authentication standard that promises strong mutual authentication without having to distribute and manage certificates for all end users.

Both companies added support for a proposed wireless security protocol, developed by Funk and Certicom, called Tunneled Transport Layer Security (TTLS) to their Remote Authentication Dial-In User Service (RADIUS) authentication server products. Funk this week will announce Steel-Belted Radius/Server Provider Edition 4.0 with support for TTLS. Interlink says it shipped its first wireless LAN authentication server called Secure.XS based on TTLS in the hope that if you build it, the wireless users will come.

Hanging over any deployment of TTLS is the impending arrival

of software based on a competing protocol, the Protected Extensible Authentication Protocol (PEAP), which Microsoft and Cisco back. PEAP defines a way for securely transporting authentication data, including passwords, over 802.11 wireless networks.

TTLS and PEAP work within the framework of the broadbased IEEE 802.11 wireless LAN standard for authentication known as 802.1X. PEAP and TTLS each use Transport Layer Security (TLS) — which is often described as a better Secure Sockets Layer — to set

up an end-to-end tunnel to transfer the user's credentials, such as a password, without having to use a certificate on the client.

"We'll try TTLS because we want to deploy [wireless] LANs securely," says Jay David, manager of network planning and services at the University of Rhode Island in

> ## "Unfortunately, Funk is fighting an uphill battle with TTLS when you have Cisco and Microsoft backing PEAP."
>
> **Jay David**
> Network planning and services manager, University of Rhode Island

Kingston, which recently installed about 20 Enterasys Networks wireless LAN access points in campus locations for use by students and staff. But David questions whether his allegiance to TTLS will be long-term when Microsoft and Cisco back PEAP

in their products.

Very much like TTLS, PEAP makes use of the IEEE's 802.1X framework to use TLS for encryption of authentication data. TTLS and PEAP are practically indistinguishable, but Microsoft and Cisco are pushing their favored protocol at the IETF in competition with Funk.

"Unfortunately, Funk is fighting an uphill battle with TTLS when you have Cisco and Microsoft backing PEAP," David notes. The University of Rhode Island has to pay to license TTLS client software and ensure it's installed on the user's desktop for secure authentication. But Microsoft, which last month made PEAP available as an add-on for Windows XP, has said it intends to ship PEAP as part of the operating system. That leaves open the possibility that the PEAP authentication software might become as ubiquitous on the desktop, as Microsoft holds about 95% of the

installed base today. That would mean the university wouldn't have to pay for licensing client software down the road.

Still, David says he's willing to try TTLS because it seems the best approach available today and is much easier to use than TLS, another wireless LAN authentication option supported in Funk and Interlink authentication server products. TLS requires digital certificates be used on the wireless LAN client.

While Funk continues to push hard for TTLS, it's also facing up to the inevitability of PEAP. "We'll support PEAP within six months," says Funk Vice President Joe Ryan.

Interlink also will add PEAP to Secure.XS within that timeframe, according to Interlink CEO Mike Klein.

Funk's Steel-Belted Radius/SPE 4.0 costs $20,000. Interlink's Secure.XS starts at $2,500 for 250 users. ■

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Purina paranoid chow?

To all intents and purposes it looks like we have seen the final shoe drop on the current phase of the Microsoft antitrust case.

The result might not be exactly what Microsoft wanted when the whole process started but it sure is not what many others wanted. U.S. District Court Judge Colleen Kollar-Kotelly basically endorsed the settlement negotiated between the U.S. Department of Justice and Microsoft earlier this year. The judge tweaked a few things but left most of the earlier settlement in place, including a provision that should speed the adoption of Linux in many parts of the world.

For the paranoid, one provision in the 300-page decision stands out:"No provision of this Final Judgment shall: 1. Require Microsoft to document, disclose or license to third parties: (a) portions of APIs or Documentation or portions or layers of Communications Protocols the disclosure of which would compromise the security of a particular installation or group of installations of antipiracy, antivirus, software licensing, digital rights management, encryption or authentication systems, including without limitation, keys, authorization tokens or enforcement criteria; or (b) any API, interface or other information related to any Microsoft product if lawfully directed not to do so by a governmental agency of competent jurisdiction."

The (a) section seems to say Microsoft can withhold information about their APIs if they claim that releasing the information would endanger the security of the system. It does not take a paranoid to expect Microsoft to do this because it already has

when talking about its own special tweak on the IETF's Kerberos standard.

The (b) section is pure paranoid fodder. This provision says that a U.S. government agency, it does not take a court, can tell Microsoft to not release the API specifications. Some of you might remember the stories circulating early in 1999 about a "NSAkey" discovered in all recent Microsoft operating systems. The speculation was that the U.S. National Security Agency (NSA) had a magic key that would let it break into any computer running Microsoft operating systems anytime it wanted to. (Search for "NSAkey" on Google to see some of the thousand references still around.)

A number of foreign governments became absolutely convinced that the U.S. government does have at least one back door into Microsoft operating systems and have actively pushed alternatives for a while. Now along comes this provision in the antitrust settlement to help reinforce

their suspicions.

One puzzling thing about this whole episode is that clause (b) probably did not need to be written to make it so. As pointed out in comments sent to the Justice Department after the proposed settlement was first posted, the clause "is a tautology and is thus superfluous to this proposed Final Judgment. . . . [the clause] simply restates the law."

Maybe the judge is a secret supporter of open software and wanted to prod people, like the Chinese government, to be distrustful of Microsoft operating systems so they would switch to Linux where you can see what is going on.

Disclaimer: I do not know if the Chinese government is distrustful of Harvard, normally the further away, the better Harvard looks, but the above is my own paranoia.

Bradner is a consultant with Harvard University's University Information Systems. He can be reached at sob@sobco.com.

Patch

Computer Emergency Response Team Coordination Center at Carnegie Mellon University in Pittsburgh.

Speer is using BigFix to tame the problem.

"BigFix has been a step in the right direction. We are not completely on autopilot, but we go through the new patches every few days and push them out to our machines," he says.

With Version 1.3, BigFix is adding the ability for multiple Enterprise Suite servers to communicate with the BigFix Fixlet server. Fixlets are templates that define a security vulnerability and its corresponding patch. They are installed on servers and clients. That lets companies install Enterprise Suite servers at multiple locations for optimizing performance. BigFix also has added a peer element that lets one machine at a remote site download new Fixlets from the Enterprise Suite server and distribute them to the rest of the machines in its domain.

BigFix also has enhanced its administrative console with the ability to create groups of like machines to streamline the distribution of patches. And it has enhanced its reporting engine so users can create customized reports or integrate with other reporting software or a SQL-based database.

Big Fix also is adding support for virus software from McAfee and Symantec to facilitate the automatic distribution of new virus definition lists.

Patch costs

Worldwide, corporations spend in excess of

$2 billion

annually to investigate, prioritize and deploy software patches for security vulnerabilities, according to a recent survey by Aberdeen Group.

Enterprise Suite 1.3 is slated to ship Nov. 11. The software costs $25 per seat for 1,000 seats. The server software runs on Windows 2000, while the client software supports all Microsoft operating systems back to Windows 95, and Red Hat Linux.

Meanwhile, ConfigureSoft is adding a trio of new capabilities to Security Update Manager 2.0. The software will let remote machines download patches from a local distribution point, which will allow users to reduce the amount of traffic over a WAN. It also includes a logging feature to ensure the patch was correctly installed. ConfigureSoft also is adding a template feature that will let users test a group of like machines, such as all those running Microsoft SQL Server, against a newly issued patch.

"Our focus now is on patch management issues for large enterprises," says Alex Goldstein, CEO of ConfigureSoft. "We do things faster and on a greater scale."

ConfigureSoft also has added an administrative capability for customizing administrative roles that control who has access to what machines and who can deploy patches.

Security Update Manager 2.0 is expected to ship this week and costs $25 per server and $5 per workstation. ∎

Nokia

detected, the entire message is quarantined and a report is sent back to the message's sender and to its recipients, according to MacDonald.

Trend Micro is providing antivirus technology that will be used in the Nokia message protector component of the SC6600. Nokia provides other components that perform content filtering, URL filtering, spam rejection and exploit rejection.

Trend Micro manages virus signature updates and alerts and reports to a back-end server operated by Nokia. Those updates will be verified and run through quality control checks by Nokia, signed and then pushed out to SC6600s at customer sites using an automated update feature, according to MacDonald and Kevin Murray, senior product manager at Trend Micro in Tokyo.

The automatic update feature is a mandatory component of the SC6600, although customers can determine how frequently they want their appliances to check for updates, MacDonald says. Manual virus signature updates are not possible, he says.

Outbound e-mail also will be analyzed by the SC6600. Customers can block specific file attachments and text strings such as domain names from being sent out by employees using e-mail, MacDonald says.

Administrators will use a Web-based management interface to indicate what information or types of information should be blocked, he says.

The SC6600 will be a one-rack, dual-processor appliance. It will use Nokia's IPSO operating system and will be optimized for e-mail message protection, capable of processing 15K-byte e-mail messages at a rate of 120,000 per hour, MacDonald says.

The device is being targeted at midsize

to large companies of 1,000 employees or more. It will sell for about $16,000, not including Trend Micro's per-user license of about $22, MacDonald and Murray say.

Nokia is competing with companies such as NetScreen Technologies and Symantec in the growing market for network security appliances that halt viruses and thwart attacks at the network edge before they reach critical systems.

The decision to collaborate with Trend Micro is consistent with Nokia's strategy of partnering with leading security software vendors to deploy their technology on Nokia's hardware platform.

> **❝ Companies have firewalls in place, but there's a river running under that firewall called e-mail, and it has a lot of nasty things in it. ❞**
>
> **Dan MacDonald**
> Vice president, product management, Nokia

The company has long partnered with software maker Check Point Software to produce dedicated security appliances such as firewalls.

Nokia's announcement of the SC6600 coincides with the company's Mobile Internet Conference in Munich this week. The company has announced a variety of new end-to-end security appliances that are to be released in the first quarter of next year.

Roberts is a correspondent with the IDG News Service's Boston bureau.

CONFUSION

QUESTION

SOLUTION

FAILED ATTEMPT
AT HUMOR

Lotus. software

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1] WIN WITH SPEED: No question about it. Whether it's on a PDA
or a PC, the faster your workforce can exchange ideas, the faster
they can act on them.

2] WIN WITH LOTUS: As the leader in business instant messaging,
Lotus Sametime® helps you locate and communicate with
the people you need, instantly and securely. Lotus. Part of our
software portfolio, including DB2,® Tivoli® and WebSphere.®

3] MAKE THE PLAY: Visit **ibm.com**/lotus/team for a Webcast
on instant messaging and its effects on speed of collaboration.

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Verizon to enter business long-distance

Northeast service expected to launch early next year and reach 56 markets.

■ BY MICHAEL MARTIN

Verizon's impending entry into the business long-distance market might not accelerate the decline in the cost of telecom services, but it will give customers another financially stable provider to which they can turn, experts say.

"We will compete on price where we have to, but for the most part we will compete on product and value," said Ivan Seidenberg, Verizon's president and CEO, announcing the move last week.

The incumbent local service provider in the Northeast, Verizon is taking aim at business telecom leaders AT&T, WorldCom and Sprint with its plans to enter into the business voice and data long-distance market. Verizon will launch services to customers in the Northeast in the first quarter of next year and roll out nationally to 56 markets during the next two years.

Verizon has a significant presence in a number of metropolitan areas outside its local service territory that the former GTE served. Verizon was formed in 2000 by the merger of Bell Atlantic and GTE.

Verizon's Business Solutions group will spearhead its business initiative. Business Solutions, which sells integration and network services to large businesses, employs about 14,000 people and has annual sales of $7 billion. The enterprise services, which will be marketed under the name Enterprise Advance, will include network management, data storage, business recovery and security in addition to basic voice and data services.

Under the Telecommunications Act of 1996, Verizon and the other regional Bell

> ❝We can build a network better and faster than we can move by picking up someone's legacy network.❞
>
> **Ivan Seidenberg**
> President and CEO, Verizon

operating companies — BellSouth, SBC Communications and Qwest — were prevented from offering long-distance services in their local service territories until they had proven that they opened their telecom networks to competitors.

Verizon has won approval to offer long-distance services in all of its 15 local service areas except three — Maryland, West Virginia and the District of Columbia. Verizon officials say the company will wrap up approvals for those areas during the next several months.

The company has offered long-distance

services in many of its local states for more than a year. But until now, it has concentrated on the consumer and small-business markets. In some states, Verizon has managed to snap up as much as 30% of the consumer long-distance market.

Verizon shouldn't have much trouble drumming up long-distance customers in the large-business market, says Thomas Nolle, president of consulting firm CIMI and a *Network World* columnist.

"We've done surveys that show that in the enterprise market the RBOCs have as

Short Takes

■ Responding to the uncertainty surrounding service providers in the tough economy, managed hosting company **Digex** is offering a 12-month contract term that allows early termination with no penalty. The **Digex @ No Risk** promotion is available through Dec. 31. Customers who terminate the contract within the first six months will not be penalized and will have install fees refunded, a Digex spokeswoman says. If the customer completes the yearlong contract, the first month of the new contract will be free. Digex @ No Risk is available to new customers and in new configurations for existing customers. It applies to all standard services.

■ **Interliant** announced last week that it has sold "noncore" shared Web hosting assets to **Sprint** for $5 million. Sprint bought servers, storage and networking gear that Interliant used to support some of Sprint's "private label" customers, which it acquired from DellHost last year. Sprint is bringing the gear and customer support in-house, which is expected to result in operational savings for Sprint, according to the carrier. Managed Web hosting service provider Interliant has been selling various assets since filing for Chapter 11 in August.

Cybera looks to undercut frame relay

■ BY TIM GREENE

NASHVILLE — Cybera, a regional carrier with national aspirations, is rolling out network- and customer-site VPN services at what it says are half the price of frame relay connections.

The provider has four services under the name Smart Network that rely on virtual router gear in its network to create fully meshed connections among corporate sites. Called SmartOffice, SmartRemote, SmartDial and SmartVPN, the services are designed to offer an array of network connections for varying business circumstances.

SmartOffice is billed as a frame relay replacement in which customer sites are connected to Cybera's network via any transport link — DSL, frame relay, private line, metropolitan Ethernet — and the traffic is routed across Cybera's backbone via Cosine's IPSX 3500 IP services switch. The switch's virtual router technology makes it seem as if each customer has its own router

Cybera WAN services

Service provider Cybera offers four options for linking business sites.

Service	Price/site/month
SmartRemote	$100
SmartOffice	$120 to $400*
SmartDial	$25(per user)
SmartVPN	$50 plus hardware

*Depends on number of sites, size of connection.

within Cybera's network to direct traffic.

SmartOffice costs $120 to $400 per month, per site, depending on how many sites are connected and what size access link is used. A 190K bit/sec SDSL connection to the service costs $150 per month. By comparison, a 56K bit/sec frame relay connection can cost $200 to $300 per month, per site, plus a per-virtual-circuit fee. The SmartOffice service is fully meshed with-

out virtual circuit fees. Some providers are slashing frame prices in response to competing IP services.

SmartRemote is the same service based on asymmetric DSL links. SmartDial is for users who attach to the network via dial-up Internet connections and whose sessions are protected by IP Security (IPSec) VPN software running on the PC. Smart-VPN is for users who want to use the Internet as the link between sites. Cybera protects these connections with managed IPSec VPN appliances from NetScreen Technologies.

Cybera says it wants to enhance the service by adding more access options, including wireless. It also plans to open sales offices outside the Southeast. It can connect to sites anywhere in the U.S.

Executives from former DSL service provider BlueStar Communications formed the company in February 2001. DSL provider Covad Communications bought BlueStar and ultimately shut it down to escape bankruptcy. ■

How to make 'operational excellence' a reality

Many telecom departments and IT groups are focusing on what I call "operational excellence." In a nutshell, that means providing top-quality services to internal customers: the lines of business and end users within their organizations. Operational excellence requires vision, customer intimacy and the ability to execute flawlessly.

If that doesn't describe your IT group yet, where should you start? You might think it's with the service-level agreement (SLA). Well, yes and no. SLAs are important, but many organizations implement them too early in the process, without knowing what their customers actually require, or why they're not delivering. Frustration and failure result.

Instead, start by benchmarking your existing internal service delivery. Find out how you're doing — from the customer's perspective. That means gathering qualitative and quantitative data. Yes, network engineers need to measure downtime, availability and performance, and the help desk needs to know mean time to respond and mean time to repair. But that's not all.

Take the time and energy to find out your users' main concerns. You'll probably uncover surprises. Users often blame the network for application difficulties. Or they complain that a service is difficult to configure and use, rather than unreliable or unavailable. One client found that his internal users perceived videoconferencing services to be at fault because users couldn't figure out how to set up calls. You might even discover that an area in which you've been investing considerable resources — obtaining that fourth or fifth availability "nine" — isn't even an issue.

Once you've compiled this information, review it internally. Where does it seem your organization could use the most improvement? Dispatch a "tiger team" to understand why you're below par and propose solutions. If you're severely understaffed, that tiger team might be you. Trust me, it's worth the late nights and weekend work.

Now that you have a baseline understanding, you're ready to talk about your efforts publicly. Prepare a set of reports tailored to your disparate audiences: senior executives, network engineers and help desk personnel. And don't just e-mail this information: Make sure to review the data with your customers, preferably in person. This lets you defuse potential issues early. And finally, commit to providing this information regularly, along with an update on the progress of the tiger team.

Only once you know how you're doing and why you're falling short are you finally ready to craft SLAs.

Do this collaboratively. Before setting SLAs in stone, get another round of user feedback to make sure you're focusing on what your customers think is important. This also lets you apprise folks of any necessary trade-offs. Let's say you can deliver either 5-minute response time or 5-hour resolution time, but not both: Have your customers tell you which matters more.

Remember that the best route to customer ecstasy is delivering 110% of what your customers have told you they need.

Johnson is president and chief research officer at Nemertes Research, a technology research firm. She can be reached at johna@nemertes.com.

Speedera service generates dynamic images on the fly

■ **BY JENNIFER MEARS**

SANTA CLARA — Content delivery specialist Speedera Networks says it has the answer for companies tired of the time-consuming task of manipulating and storing static images on graphics-heavy Web sites.

Speedera is partnering with imaging software maker TrueSpectra to provide a fully hosted service that lets customers make changes to Web site images on the fly. The Speedera Dynamic Imaging Service, being introduced this week, integrates TrueSpectra's Image Servers into Speedera's content delivery network.

Typically, Web sites start with a high-quality graphic and then make derivatives of that graphic for various uses, such as a zoom view or an image with a text overlay. Each modified image is then stored as a static file. TrueSpectra eliminates the need to create and store static images by letting Web sites generate dynamic images on the fly.

The technology uses a URL query string based on HTTP or XML to tell the application server how to modify an existing image. For Speedera customers, images are uploaded to the Speedera network and changes can be made via SpeedEye, Speedera's monitoring and management user interface.

"Our technology allows you to

Easier images

Speedera is hosting True-Spectra's Image Servers within its content delivery network to offer a dynamic imaging service. Key features:

- Eliminates need to manually manipulate and store static images.

- Images can be manipulated on the fly to create zoom views, for example.

- Fully outsourced and integrated with Speedera's CDN.

- XML-compliant.

work from original high-quality source images, but instead of manipulating them on a software package, you use a URL string and tell the server what to do with it. Then the server goes and does it for you," says David Watkins, CEO of TrueSpectra. "It eliminates most of the repetitive tasks and provides a lot more flexibility because if you decide you want your thumbnails to be a little bit bigger, you just basically change a parameter on your application server and now your images are just a little bit bigger."

The technology also enables zoom capabilities, a real plus for retail sites that want to give customers a closer look at merchandise, Watkins says.

Jill Aldort, a research analyst at

InfoTrends Research Group, says TrueSpectra competes with firms such as Equilibrium, PictureIQ and iPIX. By partnering with Speedera, TrueSpectra is offering a unique service, she adds.

"This enables them to offer their service at a much lower price point," Aldort says. "For a couple thousand dollars a month customers get this service, and they don't have to invest thousands and thousands of dollars for start-up costs. Rather, it's just something that's added to an existing service."

By integrating the service with a CDN, customers get the added benefit of quick downloads and Speedera gets an edge by providing a unique service that might not be available from its CDN competitors, Aldort says.

"It's a natural area [for Speedera] to get into," she says. "It goes hand in hand to have the content delivery network coupled with a capability that allows graphic-intensive Web sites to more efficiently deliver those images and deliver rendered versions of those images. . . . It gives Speedera a leg up on their competition." ■

Verizon

good a perception [among customers] as the interexchange carriers," he says.

Large businesses are especially concerned about turning to interexchange carriers now, Nolle says, given the poor financial health of companies such as WorldCom. By comparison, Verizon looks like a safe haven, he says.

One area where Verizon will face a challenge is in deciding what kind of core network to build.

"If they're too conservative there's a risk of not building a network that can take full advantage of new IP services," Nolle says. "And if they're too revolutionary, they could have trouble supporting legacy services like frame and ATM."

Details sketchy

Verizon officials didn't reveal many details of how they plan to build out a long-haul network. The backbone will be optical, and it will be leased from other bandwidth providers rather than purchased. Leasing lets Verizon take advantage of the low cost of long-haul bandwidth.

The company has no plans to purchase a long-haul provider such as WorldCom.

"We can build a network better and faster than we can move by picking up someone's legacy network," Seidenberg said.

AT&T, the leader in the enterprise long-distance market, doesn't see Verizon as a significant threat, says Mike Jenner, vice president of global IP network services for AT&T Business.

Verizon is a newcomer to business long-distance, and it will take some time for the company to learn the market, Jenner says. He also says Verizon won't have the global reach AT&T has, despite the fact that Verizon has some international network assets.

Nolle says SBC and BellSouth won't be far behind Verizon in launching business long-distance offerings. SBC likely will enter the market later this year, he says. BellSouth will likely not concentrate on the large business market as heavily as Verizon and SBC, because only about 11% of large corporate headquarters are based in BellSouth's local service area, Nolle says.
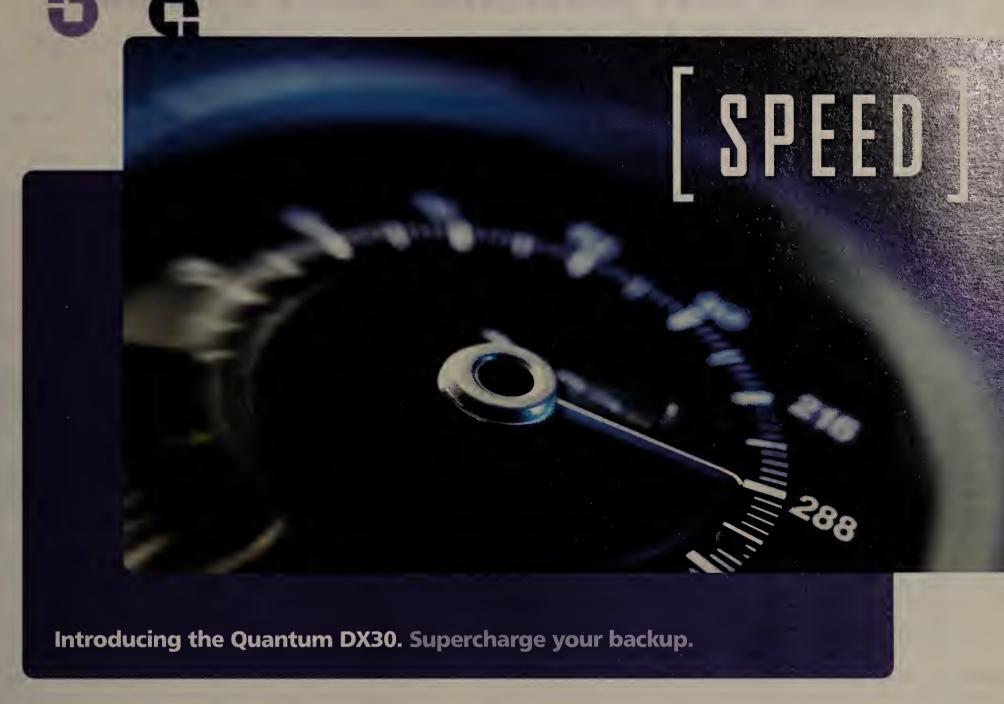
Qwest already offers long-distance services outside its local service area. But it will likely be the last of the RBOCs to gain long-distance approval in all of its local states, because it is the furthest behind in the process, Nolle says. ■

The Edge

Short Takes

■ **Turnstone Systems** last week announced the availability of programming interfaces that facilitate the integration of Turnstone's **ONYX Automation Software** with carrier operations support systems.

The company also announced an application module designed to assist network operations center personnel in the testing of telecommunications services. Turnstone's products are targeted at the provisioning and maintenance of unbundled network elements. About 10 million phone lines in the U.S. today are delivered through UNE circuits, Turnstile says. The Turnstone UNE management system is designed to reduce or eliminate the labor-intensive steps associated with the delivery and troubleshooting of wholesale services, the company says.

Turnstone's software will be available in the first quarter of next year.

■ **Ciena** last week said **Brocade Communications** had verified its online transport platform as interoperable with Brocade's storage-area network switches.

Testing was conducted at the Brocade interoperability labs, which support end-to-end interoperability and performance testing of SAN products in large, multivendor SAN environments. Since 2000, 40 companies have certified interoperability with Brocade's SAN gear.

■ **Cisco** last week posted first-quarter 2003 earnings **one cent per share better than expectations,** although flat compared with fourth-quarter fiscal 2002. For the period ended Oct. 26, earnings were $1 billion, or 14 cents per share, on revenue of $4.8 billion. Earnings have more than tripled and revenue is up 9%, from the same period a year ago, but flat compared with fourth-quarter 2002. Analysts expected the earnings to be 13 cents per share on revenue of $4.8 billion. Cisco says sales in the service provider market continue to be challenging because of capital expenditure reductions.

Gravy train from China slows

Market no longer a respite from North America for telecom equipment vendors.

■ BY SUMNER LEMON

Who knows how these things get started?

Was it the slowdown in demand for telecom equipment in other markets that made China seem so hot? Maybe it was that magic number: a largely untapped market of 1.3 billion potential customers. Or perhaps it was the rented police motorcades with their flashing lights and sirens, which whisked wide-eyed executives from their hotel suites to meetings with senior government officials that made the difference.

However it happened, telecom equipment makers have been betting on China to deliver bullish growth in the years ahead, especially with the sluggish markets in North America and the rest of the world because of sharply reduced carrier spending and shrinking economies. But there are signs that equipment vendors could be headed for a rude awakening if they expect the high rates of growth seen in recent years to continue.

These days, the growth of China's telecom equipment market is slowing as capital expenditures have fallen by nearly one-third, and analysts see no sign of a bonanza for foreign equipment makers.
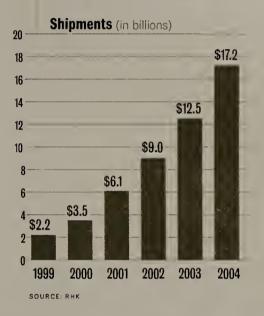
"This year there is a decline in the equipment market in China, that is very clear," says Bertrand Bidaud, vice president of telecommunications, Asia-Pacific, at Gartner.

But how can a market often described as one of the world's fastest growing telecom equipment markets be experiencing a slowdown in growth? The slowdown is the result of several factors. On one hand, the Chinese market is not as large as some might think and competition has grown fiercer, both from overseas and domestic equipment vendors. In the midst of growing competition, the country's dominant fixed-line carrier was restructured earlier this year and slowed its capital-expenditure spending. Together, these factors have helped put the screws on equipment vendors already faced with tight profit margins from sales in China.

"Chinese carriers have been very adept at squeezing costs out of the system and playing vendors off each other," says Duncan Clark, managing director of telecom consultancy BDA China.

Bright light

The market for SDH and WDM optical equipment in Asia-Pacific region is expected to grow.

Shipments (in billions)

Year	Shipments
1999	$2.2
2000	$3.5
2001	$6.1
2002	$9.0
2003	$12.5
2004	$17.2

SOURCE: RHK

In addition, signs of slowing growth have begun to emerge in some parts of China's telecom market. Rural areas in the country, where the overwhelming

WaveSmith Networks names CEO

Former Unisphere COO takes the helm.

■ BY JIM DUFFY

ACTON, MASS. — WaveSmith Networks last week named former Unisphere Networks COO Thomas Burkardt as its chairman and CEO. Burkardt replaces company founder Robert Dalias, who will assume the role of CTO, a position he's juggled in addition to his role as CEO.

Burkardt left Unisphere 15 months ago and has been investing in companies and sitting on boards — including WaveSmith's. Burkardt and Dalias also worked together at Castle Networks, a packet telephony start-up that Burkardt co-founded and was acquired by Siemens as one of three small companies combined to form Unisphere.

"We've got to set the stage for this company to change and grow as we get into revenue," Dalias says. "We couldn't be better positioned at this point."

"This is what I enjoy doing," Burkardt says. "I enjoy building a business and a company. We're at that point now where it really makes my juices flow. We're building a business for the long haul and that's what keeps me excited, that's what I enjoy."

WaveSmith recently landed $30 million in funding, including $5 million from Ciena, which will sell, service and support the start-up's multiservice edge switches. WaveSmith reportedly is gaining momentum in its carrier trials.

Sources say WaveSmith is close to receiving a contract from SBC Communications for a multiservice edge buildout valued in the tens of millions of dollars. The company is a finalist for a major next-generation frame relay buildout by Verizon (see www.nwfusion.com, DocFinder: 3052).

Three years ago, during the heyday of the Internet boom, a start-up such as WaveSmith would have been acquired, Burk-

ardt says. Now the company faces a "critical juncture" in developing a business plan to generate revenue on its own, he says.

"We've got some traction, we've got some funding, that's great," Burkardt says. "Now we have to prove that we can build an operating plan, stick to it, grow the revenue and become a solid business."

As for Dalias, WaveSmith officials said management has been spread too thin and that he would rather plot product strategy than run day-to-day operations. ■

More online!

Before it landed its new CEO, WaveSmith got some much-needed funding. See who invested and how it will spend the money.

DocFinder: 3658

Asia-Pacific

majority of Chinese live, saw a dramatic slowdown in demand for fixed-line services earlier this year, with growth dropping by 41% compared with the previous year, according to China's Ministry of Information Industry (MII).

Perhaps the greatest effect on equipment spending has come from dominant fixed-line carrier China Telecom, which in May split into two separate entities: China Telecom and China Netcom.

The new China Telecom operates services in 21 provinces in southern and northwestern China and holds 70% of the national trunk transmission network assets owned by the former China Telecom. China Netcom combines the former operations of China Netcom, Jitong Communications and former China Telecom operations in 10 northern provinces.

This restructuring has occupied the attention of both companies and has helped put the breaks on growing Chinese telecommunications equipment spending. By the end of September, capital-expenditure spending by Chinese telecom companies reached $11.6 billion, a drop of 31% compared with the same period last year, according to MII.

Capital-expenditure spending in 2001 totaled $31.8 billion, up 15.3% from 2000, it says.

"The restructuring of China Telecom had a major impact," Bidaud says.

"China Telecom is still the major purchaser of equipment in China, and the restructuring pretty much meant that the year was lost for equipment vendors," he says.

The announcement of the latest CDMA equipment deals, which are valued together at more than $1.2 billion, will see Unicom expand the capacity of its national CDMA network from 15.2 million to 30 million subscribers.

Nevertheless, the outlook for equipment spending and subscriber growth in some sectors of China's telecom industry remains healthy, even if expected growth rates will be slower than in previous years.

Indeed, sales of synchronous digital hierarchy and wavelength multiplexing optical transport equipment in the Asia-Pacific region is expected to almost doubled between 2002 and 2004.

But questions remain as explosive wireless subscriber growth in recent years has given way to maturing markets and more complex challenges, such as growing market segmentation.

"I think the key question, say in the mobile area, is where are the next 100 million mobile users coming from," Clark says, noting that China still holds significant potential for growth.

Untethered opportunities

Mobile telecom is one area where equipment vendors continue to win large deals from Chinese carriers. In October, many companies, including Ericsson, Lucent, Motorola and Nortel, signed deals with China United Telecommunications (Unicom) to upgrade its Code Division Multiple Access network to the CDMA2000 1X standard. The announcement of the latest CDMA equipment deals, which are valued together at more than $1.2 billion, will see Unicom expand the capacity of its national CDMA network from 15.2 million to 30 million subscribers.

The deal, which was signed in New York, represents one of the largest single packages of telecom equipment deals that Chinese carriers awarded this year. Its announcement was made to achieve maximum political effect, timed as it was for the day before the arrival of Chinese President Jiang Zemin in the U.S. for a meeting with President Bush.

The rollout of CDMA in China has long been a political issue between the U.S. and China. Various political disputes between the two countries helped delay the launch of CDMA services in China from the mid-'90s until this year, despite the U.S. Department of Commerce's lobbying efforts, Clark says.

"CDMA has been a political football between the U.S. and China," he says.

Unicom and the country's largest mobile operator, China Mobile Communications, operate networks based on GSM. When Unicom received its CDMA license and announced plans to launch a service based on the mobile-communications technology, there were those within the company who saw little sense in offering comparable services based on two different technologies.

"There was resistance and there still is resistance within Unicom," Clark says.

Unicom's CDMA service, which covers 330 cities, has gotten off to a rocky start. Launched in January, Unicom had attracted 800,000 subscribers by April, including 440,000 subscribers of an existing CDMA network that Unicom acquired from Great Wall Telecom, a company linked to the Chinese military. During the same period, Unicom added 6

Portions of the pie

Top 10 Asia-Pacific markets for U.S. telecom equipment in 2001.

Total market: $6.4 billion.

Japan 33%
China 17%
Hong Kong 15%
Korea 9%
Taiwan 7%
Australia 5.6%
Singapore 5.4%
Malaysia 3.5%
India 2.7%
Philippines 1.8%

SOURCE: U.S. INTERNATIONAL TRADE COMMISSION

million subscribers to its GSM network, raising questions whether the provider would be able to meet its targets of 7 million subscribers by year-end.

Slow CDMA subscriber growth has continued to plague Unicom. By the end of September, the company put the number of its CDMA subscribers at 2.3 million, still far short of its stated target but closer to analyst expectations of between 3 million and 4 million subscribers by year-end.

Unicom has blamed slower-than-expected CDMA subscriber growth on a shortage of affordable mobile phones that support the wireless standard. Perhaps hoping to avoid a repeat of that problem when Unicom launches its CDMA2000 1X service by year-end, the company announced in September a deal with Samsung Electronics — which BDA estimates has been losing handset market share to domestic competitors — for 700,000 CDMA2000 1x handsets and said the two companies would collaborate on development and marketing of CDMA phones.

Revenue on the rise

One bright spot for Unicom's CDMA network is subscriber revenue, which remains higher than its GSM service. For its third quarter, ended Sept. 30, the carrier reported that average monthly revenue per user (ARPU) for its CDMA subscribers was $17.8 billion, more than double the $8.5 billion it earned on average from subscribers of its GSM network.

One main reason for the lower ARPU for GSM customers is the growing number of prepaid GSM subscribers, according to Unicom. Prepaid cellular services let customers pay in advance for a cer-

tain amount of mobile telecommunications access, which can be used for either voice or short messages.

Of the 9.1 million new GSM subscribers that Unicom reported during the first three quarters of 2002, 7.5 million, or 82%, were prepaid customers, which typically generate less revenue for carriers than postpaid subscribers. That brings the number of Unicom's prepaid GSM subscribers to 18.01 million, or nearly 50% of the company's total 36.1 million GSM subscribers, the company says. Unicom does not offer a prepaid option for its CDMA service.

On the horizon

Looking ahead, Unicom's CDMA service should receive a boost from the rollout of CDMA2000 1X technology, which offers higher data access speeds and should help attract more subscribers if the experience of carriers in South Korea and Japan is any indication, observers say.

In addition, Unicom has no plans to upgrade its GSM network to General Packet Radio Service capability, which will help to differentiate the carrier's GSM and CDMA services.

"We see [CDMA2000] 1X being a compelling offering," Clark says, adding that it is still too early to tell exactly how Unicom's CDMA2000 1X service will be received and what its future prospects are. "Unicom could still mess this up."

Even if Unicom's CDMA2000 1X service fails to win over Chinese subscribers, there will be plenty of other opportunities for equipment vendors in the coming years, analysts say. Growth in equipment spending might be slowing in China compared with previous years but they see no sign to an end of spending on telecom equipment in the foreseeable future as China advances its development plans.

Lemon is a correspondent with IDG News Service's Taipei bureau.

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Technology Update

■ AN INSIDE LOOK AT THE
TECHNOLOGIES AND STANDARDS
SHAPING YOUR NETWORK

G.SHDSL: It's like ADSL, only better

North American telcos are evaluating new international standard for Internet services.

■ BY DONALD SKIPWITH

G.SHDSL is a new international standard for single-pair, high-speed DSL, as defined in the ITU-T Standard G.991.2. Unlike asymmetric DSL, which was designed for residential applications in which more bandwidth is delivered downstream (to the house) than is available upstream (to the Internet), G.SHDSL is symmetrical — offering 2.3M bit/sec in both directions.
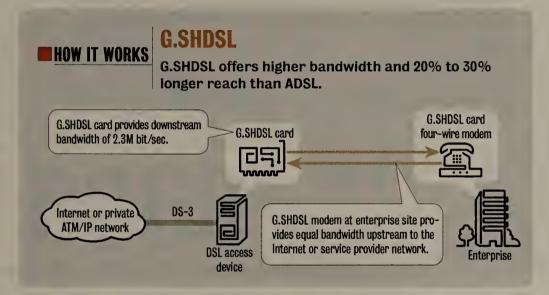
This makes G.SHDSL better-suited for business applications, which require higher-speed bandwidth in both directions.

G.SHDSL combines the positive aspects of existing copper-based, high-speed communications with the benefits of increased data rates, longer reach and less noise.

Today's North American private line, frame relay and Internet services for business applications typically are served by T-1 — 1.544M bit/sec access lines. T-1 technology moved from Alternate Mark Inversion/Bipolar 8 Zero Substitution (AMI/B8ZS) coding to high-bit-rate DSL (HDSL) in the early 1990s. T-1 AMI/B8ZS was a two-pair (four-wire) technology with limited reach, requiring a signal regenerator (repeater) 3,000 feet from the central office

Got great ideas

■ *Network World* is looking for great ideas for future Tech Updates. If you have one and want to contribute it to a future issue, contact Features Editor Neal Weinberg (nweinberg@ nww.com).

■ **HOW IT WORKS**

G.SHDSL

G.SHDSL offers higher bandwidth and 20% to 30% longer reach than ADSL.

G.SHDSL card provides downstream bandwidth of 2.3M bit/sec.

G.SHDSL card

G.SHDSL card four-wire modem

Internet or private ATM/IP network

DS-3

DSL access device

G.SHDSL modem at enterprise site provides equal bandwidth upstream to the Internet or service provider network.

Enterprise

and another every 6,000 feet.

T-1 repeaters are expensive to purchase, install and maintain, but are required to deliver T-1 service. HDSL applied the new ISDN-based modulation scheme — 2 Binary 1 Quaternary — to T-1 communications, which resulted in transmission up to approximately 9,000 feet without the need for repeaters. North American telephone companies quickly migrated to HDSL to save the cost of one or two repeaters.

In the rest of the world, business applications are typically served by E-1, at 2.048M bit/sec. Europe, where business customers usually are within reach of the central office, has not migrated as quickly to HDSL transport.

But Europe, along with the rest of the world, did want to take advantage of the advances being made in the DSL world and, through the International Telecommunications Union, sanctioned the specifi-

cation of G.SHDSL to provide increased bandwidth with reduced noise.

Today, U.S. business DSL lines are predominantly asymmetric DSL (ADSL) — the residential technology with deliverable data rates that cap out at 384K bit/sec for symmetrical service. North American telephone companies are evaluating G.SHDSL technology for Internet services targeted at small to midsize companies, offering data rates of 786K, 1.544M and 2.3M bit/sec. These Internet services will offer a reduced service-level agreement compared with T-1 or E-1 services, at a lower monthly cost.

Four factors are driving the interest in G.SHDSL:

Standardization: The industry needs a higher-speed digital transport service for business applications. HDSL was never adopted as an international standard. Symmetric DSL — introduced as the DSL service for businesses in the late 1990s —

never became a standard and interfered with the residential ADSL service because it was spectrally incompatible (very noisy). G.SHDSL is positioned for deployment in Internet and T-1/E-1 infrastructure applications because of its international standardization.

Improved data rate: G.SHDSL offers a two-wire standard operating at 2.3M bit/sec and four-wire standard operating at 4.6M bit/sec. HDSL, when initially introduced, provided 1.544M bit/sec with four wires. G.SHDSL offers roughly three times that and, when compared with the newer HDSL2 and HDSL4 services (1.544M bit/sec over two wires or four wires), still provides significantly more bandwidth.

Improved reach: G.SHDSL generally provides 20% to 30% increase in reach over HDSL at the same deliverable data rates. Additionally, when G.SHDSL multilink technologies are used, such as four-wire, Inverse Multiplexing for ATM and permanent-virtual-circuit bonding, G.SHDSL's reach is more than double HDSL's.

Spectral compatibility: G.SHDSL is spectrally compatible with ADSL, causing little noise or crosstalk between cables. Therefore, G.SHDSL services can be mixed with ADSL in the same cables without much — if any — interference.

G.SHDSL quickly has caught on in European markets, and the major North American local exchange carriers will roll it out soon.

Skipwith is vice president of business development at Symmetricom. He can be reached at DSkipwith@symmetricom .com.

Ask Dr. Internet By Steve Blass
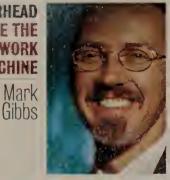
We are trying to build a VPN. At our first location we have a Windows 98 machine connected to the 'Net. We set this machine as a dial-up server and added user TSTWAN with no password. The machine has a static DNS name, www.tstmyconnection .com, which we created using trial software. The second location has users trying to connect to the first location using a VPN connection with the user name TSTWAN. We get Error 751: "The remote computer refused the VPN connection." If we change

the DNS to a different name (such as www. tstmybogusname.com), we get a different error message. What can we do?

The 751 error might be the result of an intermediate device refusing to handle the packets. Verify that the machines at the second location map your static www.tstmyconnection.com host name to the correct IP address using ping or nslookup. If not, try the server IP address in the dial-up connec-

tion server identification dialog. Also, put a password on your TSTWAN account to make the test more realistic and verify that the client settings exactly match the server settings for the VPN. Also, the Point-to-Point Tunneling Protocol ports need to be open on a firewall for traffic to flow.

Blass is a network architect at Change @Work in Houston. He can be reached at dr.internet@changeatwork.com.

Content snitch

says."A federal offense is that easy."

Even if the hidden content on your systems isn't a federal offense, there is a lot of content that could lead to sexual harassment issues or simply contravene company policies. And while you could just purge the content from systems, there is often the need to find out what people are viewing.

D o you know what Web content is on your company's computers? It seems a simple enough question, but it turns out that all sorts of content gathered from all sorts of sites accumulates as you and your co-workers perambulate around the 'Net. The problem is some of this content is not appropriate and can represent legal liability.

Let us make a digression here and point you to a story in *Wired*. The story (www. nwfusion.com, DocFinder: 3057) is about a cop who is about to do time for downloading kiddie porn. While we do not defend his actions, the fact is that many of us who do research on the Internet could find ourselves, unwittingly, in a similar situation. The plethora of pop-ups that some sites generate can download images and other content that could easily cause problems. One lesson the *Wired* article shows is that if the feds want to get you, they only need one piece of evidence. From the story:"One click, you're guilty," an FBI agent

But how to identify the "iffy" content? "Problematic" pictures can be hard to find when tens of thousands of image files are involved. And then there are URLs, text, audio and video files. In short, a tool is needed, and Gearhead has been experimenting with a pretty good one.

The tool is Snitch Professional from Hyperdyne Software. Snitch runs on PCs and can examine local and mapped drives so you could scan shares on the other machine. It can detect "interesting" content on your system in several ways. It knows what file types need to be examined (text, video and audio, and Snitch also checks the names and text content of files to see if they use any words such as !^%#.

To identify text. Snitch has a default list of keywords and phrases considered suspicious or obscene. These keywords are used in filename and URL searches. You can create and rate your own keywords and add them to the list.

Snitch also can detect skin tones in images through the company's Skin-Scan technology. SkinScan looks for tone patterns that indicate exposed flesh and works remarkably well. Images can be ordered and browsed by their SkinScan rating, letting you find the images most likely to contain nudity.

You also can browse by subdirectory location, size, date, alphabetically or by type of obscenity, and click on a checkbox next to each image to add them to the list of those to be deleted or reported.

One thing we noticed was the "Display only suspicious images" option sometimes missed images that should have been found (a nude woman overlaid with text from a pop-up ad), while other quite innocent images turned up (President Bush standing in front of a blackboard).

Note that videos are not subjected to image scanning, but they are identified and can be ordered and browsed (video browsing is the slowest content-auditing operation). Snitch has no internal support for AVI and MOV files so it can't provide a preview of the first frame as a thumbnail and instead displays a huge red "X."

Snitch also can examine archives (ZIP and ACE) and apply the other detection features to the compressed content.

Finally, Snitch can report on URLs with identified keywords (although cookies are ignored). We were surprised that on all the machines we scanned, we found URLs that contained obscenities and often associated images.

Snitch was quite an eye-opener for us and definitely a useful tool for companies that want to make sure inappropriate content isn't being kept on corporate PCs. Performance is good — Snitch scanned 75,000 files on our PC in 40 minutes in the background. The Personal version ($30) differs from the Professional version ($70) in that it cannot produce reports, doesn't support custom keywords and cannot search compressed files. A trial version also is available.

Tell tales to gearhead@gibbs.com.

GEARHEADSCORECARD

Product: Snitch Professional

Functionality..............B
Elegance......................B
Value for money.........A

Overall grade
B+

Vendor: Hyperdyne Software
www.hyperdynesoftware.com

Cool Tools

**Quick takes
on high-tech toys**
By Keith Shaw

Toshiba's new projectors lower the price bar

Toshiba's Computer Systems Group recently announced two digital projectors that start at $1,300 and offer 1,400 lumens of brightness. The TLP-S30U and TLP-T50MU also include a 400-to-1 contrast ratio, SVGA (800-by-600-pixel) and XGA (1,024-by-768-pixel) resolution (SVGA for the S30U; XGA for the T50MU). The projectors weigh about 5 pounds. The S30U starts at $1,300, the T50MU at $2,200. For more information, go to www.csd.toshiba.com.

Toshiba's new low-priced projectors come with 400-to-1 contrast ratio.

HP announces Media Center PC models

Hewlett-Packard recently announced its line of HP Media Center PC models that run Microsoft's Windows XP Media Center Edition. HP says Media Center Edition lets Media Center PC users access digital entertainment, such as live television with a free electronic program guide, up to 90 hours of personal video recording, digital music, digital video, DVDs and photos.

HP says the Media Center PC can connect to a TV in cases where users want a PC and television in the same space. The new Media Center PC models include Intel Pentium 4 processors, and have a six-in-one media card reader on the front panel to transfer digital data from sev-

eral flash memory formats.

The 873n model will be sold in retail stores in the U.S. and Canada. The 863n (value model) and 883n (performance model) will be sold directly from HP through its Web site (www.hpshopping.com) or in retail kiosks.

D-Link updates wireless broadband router

D-Link Systems has announced its AirPlus Enhanced 2.4-GHz Wireless Broadband Router (DI-714P+), a wireless unit with up to 22M bit/sec speed and a four-port 10/100 Ethernet switch, hardware firewall and built-in print server.

Aimed at the small office/home office and home markets, the router's print server takes the burden of printing off a PC, D-Link says. The router also lets multiple users securely share files, Internet access and peripherals, and has a Web-based interface for configuration.

It integrates stateful packet inspection to check that incoming data is not malicious, D-Link says. Transmissions can be filtered for content based on media access control address, IP address and domain name. VPN passthrough support is provided for IP Security, Layer 2 Tunneling Protocol and Point-to-Point Tunneling Protocol sessions. The router also supports 64-, 128- and 256-bit Wired Equivalent Privacy encryption for wireless security.

The router will be available by the end of this month through retailers for about $140. Go to www.dlink.com for details.

Nokia's new phone has flip-up keyboard

Nokia has announced phones it will ship over the next six months. One that caught my eye was the Nokia 6800, a mobile unit with a cover that flips over the screen and reveals a keyboard. The device can be used for information management, messaging and other text inputs.

Other features include support for the
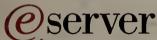
Multimedia Messaging Service (MMS), Java downloading, a stereo FM radio and a color display. The phone will work on the GSM/General Packet Radio Service networks in Europe, Asia and Africa, and shipments are set to begin in the first quarter of next year.

Via its Pop-Port connector, the 6800 also will support Nokia's Camera Headset, an add-on attachment that merges a mobile headset with a digital camera. The headset will let users send digital images as MMS messages to other MMS-enabled phones.

U.S. users won't get to use the phone, but I wouldn't be surprised to see future models sold in the U.S. with this style of keyboard.

Shaw can be reached at kshaw@nww.com.

The Nokia 6800 flips open to reveal a keyboard that eases text input.

HOW DOES E*TRADE FINANCIAL PLAY TO WIN?

@server

Winning with Linux® and Intel®. Online diversified financial services company E*TRADE Group, Inc., has just installed 90 IBM @server xSeries™ servers running Linux to support their E*TRADE Financial Web site. Why? Ease of use and Linux driven affordability and scalability. Select xSeries models feature the Intel Xeon™ processor to give you superior performance and cost-effectiveness. To receive a complimentary IDC white paper on how to reduce TCO with Linux, head over to **ibm.com**/eserver/etrade *@.business is the game. Play to win.*

opinions!

Sun CTO contemplates the future

Attending a briefing with Greg Papadopoulos, Sun's CTO, is like stepping into an MIT classroom. He loves to talk about where we've been, where we're going and why.

A question he gets a lot today is: Is innovation dead? In a word, no. "It is a far more interesting time in R&D than two years ago," he says. "In hypergrowth you're focused strictly on tactics. How do I make more stuff? Today, you get to think about the important problems and where we are going to be in the next two, four, five years."

We're at the beginning of a phase-change in computing, he says. If the 1980s were all about the PC and the 1990s were about the rise of symmetric multiprocessing servers, this decade we'll witness the arrival of what he calls the network-scaled computer.

Pushing us toward this future is an 80/20 rule. Eighty percent of IS dollars goes to operations today and only 20% goes to capital expenditures, Papadopoulos says. Fifteen years ago it was more like 50/50. We've created complex infrastructures that cost too much to maintain.

Another problem is the infrastructure is underutilized. Systems are often running at 15% to 20% of capacity, he says, while the ideal would be up around 80%.

What we need to do, Papadopoulos says, is get beyond the habit of dedicating systems to applications. We need to be able to virtualize computing resources and use them as needed, just like we're starting to do with storage.

He drew a diagram of a tiered system architecture with firewalls/load balancers at the front feeding Web servers that are tied to application servers, which are ultimately linked to servers and legacy systems that share a back-end storage-area network.

To treat this collage as a network-scaled computer that will accommodate the needs of the moment, you'll need code on all of the piece parts and a control plane to orchestrate the efforts.

On the software side, Papadopoulos says the shift to Web services should help reduce operations costs by making developers more productive. Instead of building to operating systems, developers increasingly are building to Web service components that sit on top of the operating system, such as application servers, directories, databases and messaging tools.

While it will take years for the development community to completely shift to this model, Papadopoulos says all computing is going this way.

A compelling vision. But the question is, how much will it cost you to get there?

— John Dix
Editor in Chief
jdix@nww.com

Job search reality

Regarding Chuck Yoke's column "IT jobs still abound, if flexible" (www.nwfusion.com, DocFinder: 3044): While it's easy to say that being willing to relocate, become an SNA expert and accept $20,000 less than you were previously making will increase your odds of landing a job, the reality is decidedly different. IT cutbacks have occurred in almost every sector of the country. Why would an employer in, say, Houston even want to look at a networking person from Seattle when he had more than enough local candidates? The employer also probably already has résumés from seasoned SNA experts and at the very least would be looking for someone with SNA experience.

As far as accepting a salary $20,000 lower than your last job — the employer would probably think you would only stick around until the economy got better and then bolt.

Gary Braver
Principle consultant
Fastlane Networks
Newton, Mass.

Yoke replies: I agree that the willingness to relocate and take a lower salary is no guarantee of a job. Most companies in larger metropolitan areas are focusing on local candidates because there is a large pool of available workers, and employers in these areas might be skeptical of a candidate willing to take a lower salary. However, even in these areas, savvy employers are starting to realize that the salary bar has lowered and probably never will go back to previous levels, even if the economy turns around. Many employers are starting to see someone willing to take a lower salary as a realistic person adapting his outlook and lifestyle to the new

E-mail letters to jdix@nww.com or send them to John Dix, Editor In Chief, Network World, 118 Turnpike Road, Southborough, MA 01772. Please include phone number and address for verification.

economic conditions.

I also get calls regularly from recruiters looking for people with specific skills or experience that are not available locally. The majority of the calls are not for jobs in large metropolitan areas, where the number of potential qualified applicants is large. They are from small to midsize metropolitan areas where companies that could not pay previous competitive wages are looking for more experienced workers willing to accept a lower salary in return for job stability. While there are no guarantees, the willingness to relocate to these areas and accept a lower salary opens the door to these potential opportunities.

Gigabit issues

Regarding Kevin Tolly's column "Gigabit to the desktop: A decision you can't escape" (DocFinder: 3045): Companies that grow to become major players inevitably seem to reach the point where they attempt to lead the market in a "better direction." Now we have Dell pulling an end run around network managers by installing Gigabit Ethernet cards in all its plug-and-play boxes and professing that Gigabit is the new desktop standard.

Cabling infrastructure will be a major issue. Troubleshooting will be an issue, too, because many popular network tools can't do Gig. And jumping from 100M to 1000M bit/sec will not be as easy as the jump from 10M to 100M bit/sec was.

It sounds like Dell has been watching too many SUV commercials: "Filmed on a closed circuit with professional drivers — don't try this at home — performance may vary." Just read the fine print from Dell's FAQ Web page: "Note: Actual data transfer speeds depend on the network design and traffic plus the system/PCI slot/processor configuration."

Phil Parshall
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Roswell Park Cancer Institute
Buffalo, N.Y.

More online! www.nwfusion.com Find out what readers are saying about these and other topics. **DocFinder: 3043**

MARGULIES
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Looking deeper:

Intelligent switches **go beyond** bandwidth and connectivity, delivering benefits to a company's bottom line.

In the IT world, it's easy to get caught up in the alphabet soup of computer networking features; SNMP, PVST, HSRP—the industry often speaks a language all its own.

So for just a moment, let's put all that aside and use an acronym everyone can understand: ROI. Because at the end of the day, that's the real benefit of intelligent switching—a greater return on your investments in technology.

Intelligent switching isn't just about speeds and feeds. It isn't about acquiring technology for technology's sake. And it's certainly not about being the first company on your block to deploy something cutting-edge. Rather, it's about adding brainpower to your networking muscle, so you can get more value out of the business tools you have, and easily deploy new ones in the future.

The key advantage of intelligent switching is the ability to look deeper into streams of data, to gain a more complete understanding of the traffic flowing through the network.
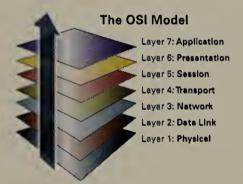
As a result, organizations can implement differentiated services based on users, applications, and individual policies. They can prioritize traffic, allocate bandwidth, and control access as they see fit. They can adapt to changing requirements, whether it's a routine shifting of priorities based on time of day or a major deployment of new technology.

High availability, advanced quality of service, enhanced security, and improved manageability are part of the intelligent switching story. But the bottom line is that intelligent switching gives organizations the power to align their networks with business goals, quickly and easily.

CISCO SYSTEMS

A Smarter Breed of Switch

Insight, knowledge, an ability to base actions on a richer source of information—it's hard to avoid describing the advantages of intelligent switching in human terms.

But the simplest tool for communicating the benefits of intelligent switching may be the Open Systems Interconnect (OSI) reference model. Developed in the 1980s, the OSI model provides a standard seven-layer framework for the design of networking systems.

The OSI Model

Layer 7: Application
Layer 6: Presentation
Layer 5: Session
Layer 4: Transport
Layer 3: Network
Layer 2: Data Link
Layer 1: Physical

The majority of LAN switches in use today are known as Layer 2 switches because they utilize information from the second layer of the OSI model. This information—specifically, MAC address headers—is attached to every data packet streaming through a network. It tells the switch what devices are involved, and the switch uses that information to forward data and apply network services.

Intelligent switches look deeper into the data packets to identify users and applications. In doing so, they utilize not only Layer 2 information, but Layer 3 IP information and Layer 4 port information. In certain cases, they can even utilize Layer 5 through 7 information to gain a more detailed understanding of how applications are being used.

In short, these multilayer intelligent switches can see where a data packet originated, where it's destined, what it contains, and where it stands in relation to an organization's network policies and business priorities.

That's what makes them intelligent—the ability to forward data and apply services based on a deeper understanding of the millions of data packets streaming through the network at any given moment.

High Availability

Over the last several years, businesses have grown increasingly dependent on their networks, to the point where their daily routines now rely on the immediate, 24-hour availability of electronic data and applications. For most, it's no longer a matter of convenience, but of survival.

Yet, we often take network availability for granted, the same way we assume we'll get a dial tone every time we pick up a phone. Only when something goes wrong does the full extent of our dependence hit home.

Cisco Catalyst intelligent switches lend the highest levels of availability and resiliency, from core to edge. With them, companies can improve network fault tolerance, decrease link convergence times, and optimize bandwidth utilization—enhancements that become even more critical as organizations move toward converged voice, video, and data networks.

If one component, power supply, or connection fails, another can take over, enabling the network to continue operating at 100 percent of its normal performance level. Service level agreements can still be met, productivity can be maintained, and business can move forward without interruption.

Cisco Catalyst intelligent switches also offer scalable bandwidth, up to 10 Gigabit Ethernet, so organizations can maintain predictable performance levels as a network grows and evolves.

The impact of network downtime should not be underestimated. A recent Sage Research study of 52 large service providers—companies that are keenly aware of the importance of around-the-clock availability—found that 98 percent of the respondents had experienced some incidents of downtime during the previous 12 months.

Based on overtime expenditures, consultant fees, penalties for breached service level agreements, and other costs, Sage estimated that network downtime cost these organizations an average of $21.8 million dollars a year—or $2,169 a minute.

Of course, in today's culture of strict cost-cutting, the mere suggestion of a network upgrade might raise eyebrows. But as one multinational corporation recently discovered, it's actually a prudent choice.

Like many organizations, this company was faced with a network infrastructure that no longer supported all of its business and networking needs, much less its plans to incorporate future technologies. So the company considered three options: First, do nothing. Second, pursue a moderate upgrade of switches at the network core. Third, step up to Cisco Catalyst® intelligent switches.

The company's executive team concluded it was well worth the expense to migrate to intelligent switches, because the move offered immediate gains in efficiency. It would also allow the company to rapidly deploy new applications, and bring greater resiliency to the organization. Without intelligent switches, the company would fail to realize the full return on its $150 million investment in applications.

Obviously, no two organizations are the same, and each should conduct its own analysis. But many will reach the same verdict: intelligent switching makes financial sense.

That's crucial, because technology that doesn't deliver a measurable return on investment is just an extravagance, and for most companies, these are not extravagant times. Businesses may face complex choices, but their goals are relatively simple: drive up productivity and drive down costs.

Over the past several years, corporations have grown increasingly reliant on networks to achieve business goals. The federal government estimates that U.S. productivity, which grew at an average pace of 1.2 percent a year from 1974 to 1995, accelerated 2.5 percent a year from 1995 to 2000, a surge that coincides with the widespread deployment of networking technology.

More recently, Cisco Systems asked researchers at the University of California at Berkeley, The Brookings Institution, and Momentum Research Group to quantify the economic benefits of the Internet. In a report released earlier this year, the research team concluded that the adoption of Internet business solutions had yielded cumulative cost savings of $155 billion to U.S. organizations. This first-of-its-kind analysis, known as the *Net Impact Study*, projected an additional $373 billion in future cost savings, most of it to be realized by 2005.
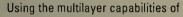
The Cisco Catalyst family runs the range from chassis to stackable switches, with models available to address special requirements, such as support for inline power and Gigabit Ethernet over copper.

But these productivity gains come at a price. The proliferation of powerful desktop computers, bandwidth-intensive applications, and new devices, such as IP phones and wireless access points, has left networks (and network managers) straining to keep up. With each new user, device, or solution added to a network, the underlying infrastructure comes under that much more stress.

Unpredictable traffic patterns can emerge, bogging down critical applications. Holes can appear in security, leaving the network vulnerable to internal and external threats. And demand for bandwidth can outstrip the supply, causing one bottleneck after another.

Advanced QoS

Quality of service, or QoS, offers something that raw bandwidth can't—the ability to prioritize the delivery of critical network resources. Adding bandwidth certainly helps speed things along, but QoS ensures that network capacity is used in the smartest way possible, coordinating traffic to align it with business goals.

Using the multilayer capabilities of Cisco Catalyst intelligent switches, organizations can set policies that allocate bandwidth and apply network services based on users and applications, so the most important traffic is handled accordingly, without leaving anything or anyone else out in the cold.

Delay-sensitive applications such as voice, video, and real-time transactions can be given priority over less important traffic. Service levels can be met, regardless of what else happens on the network. Critical applications can even be protected against sudden surges in traffic.

To provide true end-to-end QoS, Cisco Catalyst intelligent switches classify and mark packets at the network edge, inserting tags that tell other network devices how traffic should be handled. Packets may be re-marked as they move across the network, providing additional information that will be evaluated against network conditions and business policies to prioritize traffic, alleviate bottlenecks, and control the rate at which individual hosts and streams are transmitting.

At the same time, advanced QoS features lend networks greater flexibility, making it easy to adjust to changing requirements and priorities. So easy, in fact, that policies can shift according to time of day, accommodating different business needs and patterns of network usage.

End-to-end QoS keeps traffic moving in the most efficient manner possible. It can even delay the need to deploy more bandwidth by enabling companies to make better use of their existing connections.

Enhanced Security

Statistics show hackers are not the only threat to network security. Disgruntled employees pose an increasing risk to network resources, and even the most devoted worker can unwittingly pass a computer virus to the rest of the organization.

So Cisco Catalyst intelligent switches enable companies to direct their defense systems inward as well as out, providing unprecedented control over access to data, applications, and the configuration of the switches themselves.

Rather than presuming access, Cisco Catalyst intelligent switches support identity-based network access, giving organizations the ability to address three vital security issues:

• **Authentication**: Is the user supposed to have network access?

• **Authorization**: What's the user permitted to do?

• **Accounting**: Who else is using the network, and what are they doing?

Cisco Catalyst intelligent switches also feature integrated intrusion detection systems, firewalls, and virtual private network services, eliminating the need for separate security devices. The multilayer capabilities of these switches enable them to look deeper into traffic for signs of hackers, viruses, and denial-of-service attacks, and to take immediate action to protect the network after a breach is detected.

These precautions, as intense as they might seem, are warranted. In a study released earlier this year, the FBI and the Computer Security Institute surveyed 503 U.S. computer security practitioners in the public and private sectors, and found that 90 percent had detected security breaches within the previous 12 months.

The most commonly reported security problems included computer viruses (85 percent), employee abuses of network resources (78 percent), system penetration by hackers (40 percent), and denial-of-service attacks (40 percent).

The range of security features supported by Cisco Catalyst intelligent switches reflects a belief that no single point of defense can guarantee data privacy and protection; for true network security, an end-to-end approach is required.

Manageability

Cisco Catalyst intelligent switches enable organizations to avoid these and other problems by easing network migration, adaptation, and expansion. They provide the availability and resiliency required to keep network resources available around the clock, the advanced quality of service needed to prioritize traffic based on business needs, and the enhanced security necessary to protect the network from myriad risks, both internal and external.

Cisco Catalyst intelligent switches also simplify the deployment of intelligent services, offering an unprecedented level of control while streamlining all aspects of network management, so thinly stretched IT departments can do more with less.

At the same time, Cisco Catalyst intelligent switches offer a unique level of investment protection. Cisco Systems is one of the largest R&D spenders in the world, giving our engineers the resources to build upon established products and technologies. That ensures customers can use their existing infrastructures as technologies evolve, and avoid deploying something that won't be supported over the long haul.

The result: a scalable, affordable, easy-to-manage path to end-to-end intelligence across the LAN and WAN. And that translates into benefits you can actually see on the bottom line. All you have to do is look a little deeper.

From an engineering standpoint, intelligent switching is an extremely sophisticated, extraordinarily complex technology. From a network management perspective, however, it can be exceptionally easy to use.

That's because Cisco Catalyst intelligent switches simplify and centralize configuration, monitoring, and troubleshooting across the entire network. They offer more granular control over network resources, while simultaneously streamlining administrative tasks. This not only makes it possible to govern the myriad availability, QoS, and security features supported by Cisco Catalyst intelligent switches, but makes it easy to deploy applications and uniformly configure a network.

Cisco Web-based tools make it easy to deploy and manage end-to-end intelligent services.

Cisco Catalyst intelligent switches give organizations the visibility to see the impact of the network policies and priorities they establish, and the flexibility to fine-tune things as they go along. They can get more out of their networks today, and do a better job of planning for the future.

Cisco Catalyst intelligent switches use Cisco IOS® Software, providing a solid foundation for Internet applications, and enabling companies to extend common services and interfaces across the entire network to reduce training and management costs.

Meanwhile, CiscoWorks Web-based tools support remote monitoring, configuration, fault-detection, and troubleshooting through an easy-to-use interface. Cisco management software simplifies and automates the delivery of intelligent services throughout the network, regardless of the organization's size.

As a result, IT personnel can save tremendous time managing their LANs for a lower cost of ownership, even as they optimize network performance, increase availability, and tighten security.

Learn how intelligent switching can bring new levels of productivity and efficiency to your organization.

www.nwfusion.com/gocs/wp1102

CISCO SYSTEMS

Take control of the infrastructure

Things are going to get worse before they get better, but there is light at the end of the tunnel in 2004.

With WorldCom in Chapter 11 and other big bankruptcies on the horizon, the service provider world is in a highly uncertain state. What can network executives do to protect their companies?

First and foremost, service quality almost certainly will suffer in these turbulent times, so diversification of service providers is essential. Audit your enterprise nets to ascertain which service providers are being used for which services, and at what cost. Try to share the pie with as many service providers as possible. It's time to re-evaluate service provider contracts that provide discounts for longevity and volume, because flexibility and carrier diversity should be design goal No. 1.

It's also time to take control of communications back from the service providers. During the late '90s, there was a shift to using carrier services for most enterprise communications. The balance of build vs. lease for enterprise communications should tilt back toward build, and steeply. Two parts of the enterprise net that should change quickly are voice and private wide-area data networking. In the voice area, economic efficiency and increased productivity through collaborative communication applications has been proven with open IP telephony offerings. We are at the stage where IP telephony products can be extended over wide-area IP nets, reducing toll cost and arbitraging private line tariffs.

Also, there is a shift to replace private wide-area backbone networks with public multihomed Internet services. Explore accelerating this shift with route control products. Private nets are expensive in terms of capital equipment and operational expenditures, static in configuration and not flexible enough to change if you have carrier problems.

For intranet and extranet traffic, using route control to move packets between carriers based on performance, price, delay and jitter is an excellent insurance policy for an unstable carrier environment. Private network structures can be reconfigured with route control into multihomed public ISP connections to a variety of service providers delivering control, diversity, lower cost of ownership and piece of mind while the service provider industry changes. Route control brings predictable performance to ISP links, letting companies move IP telephony, VPN and other traffic over this infrastructure and between sites.

Things are going to get worse before they get better, but there is light at the end of the tunnel in 2004. After the telecom industry goes through capital restructuring and executive management change-out, chances are it will re-emerge stronger.

The main message is this: Don't run and hide; you need to be aware of these events and plan. Take control of your communications infrastructure and start thinking about building services rather than leasing them from service providers. IP telephony and route control are two inter-related technologies of the new enterprise communication infrastructure that can deliver control, reduce cost and increase diversity during very unpredictable times.

This column is an abbreviated version of the Lippis Report #007. To read the full report, register at www.lippis.com. Lippis is an industry consultant who works with CIOs of Global 2000 companies. He can be reached at nick@lippis.com.

Enter the cable carpetbagger

The cable companies have some public relations problems that everyone knows about — such as, their customers hate their guts.

The people running the cable industry must be the luckiest SOBs on the face of the earth. They don't really know what they are doing and are almost inept technically — yet they step in a pot of gold every few years. The cable industry didn't even understand the Internet two years ago and had to be led kicking and screaming to offer cable modems.

Last month at The Yankee Group's Future of the Network conference, I heard doom and gloom but no boom. There was the usual array of stars — Bill Esrey of Sprint, Ivan Seidenberg of Verizon, Dave Dorman of AT&T. Each of these honchos stated that only the financially strong will survive (them, of course) and predicted another 40 miles of bad road. It's a sorry state when the industry lusts after WorldCom's bankruptcy because shedding all the debt might give them an advantage.

The cable guys, on the other hand, are popping open champagne and spending some money, raising rates and building infrastructure — in fact, they are the only ones investing in voice, data and video. They haven't hurled away their future by paying $150 billion for worthless 3G licenses. Sure, the cable industry players are being challenged by DirecTV and Echostar, which are growing 15% per year, but cable still has a virtual monopoly. The cable companies also are taking market share from the telephone companies at long last. SBC Communications lost 3 million access lines last year — about 5% of its installed base; Verizon lost 3.5%.

OK, so the cable guys got lucky and cable modems are neat. But now comes Part 2: video on demand. I know, you're tired of hearing about something that has never happened, but it's going to start. Every telephone company supplier that I know — and I know them all — is trying to retool for the cable industry; they're thinking about the National Cable Television Association Show and the Western Cable Show and withdrawing from NetWorld and Comnet.

Are the industries different? Certainly — but not that different. The cable providers understand video and entertainment and the next requirements for interactivity. In addition, new technology is working for

them — in storage and in lowering the costs of delivering advanced video services. And finally, the consumer has changed: The success of "The Sopranos" proves that people have gotten used to paying for subscription services.

And these cable companies are going to need lots of infrastructure. They need massive storage systems, enough to handle maybe 100,000 hours of programming, and they have to be able to stream content to as many as 1 million homes in real time. Want to watch "West Wing" on Tuesdays, not Wednesdays? No problem. At 8 p.m., not 9? No problem. Want to stop the movie? Rewind? Watch it over two days? Again, no problemo. Video on demand is just a gateway to television on demand or content on demand. The cable guys have already built in the digital infrastructure, and maybe a third of them will have access to these services by 2005. Furthermore, the cable companies has never actually paid dividends, like the telcos, so they can keep investing and reinvesting with all their cash flow.

Subscription video on demand, voice telephony and television on demand are all services that your local cable company will provide by 2005. When you want to understand where the growth is coming from, this is the place.

The cable companies have some public relations problems that everyone knows about — such as, their customers hate their guts. They have service delivery, billing and price-gouging problems. Agreed. But they do have one asset: a virtual monopoly that is profitable enough to finance their next big moves into subscription video on demand and to carry with it, almost as an afterthought, voice communications.

Intel Chairman Andy Grove used to say, "Only the paranoid will survive." Bill Esrey says, "Only the financially strong will survive." Maybe the real answer is, "Only the lucky will survive."

Anderson is senior managing director of YankeeTek Ventures, a Cambridge, Mass., venture capital fund for early-stage technology companies. He is also founder of The Yankee Group and the William Porter Distinguished Lecturer at the Massachusetts Institute of Technology. He can be reached at handerson@yankeetek.com.

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The Best Issue

Never let it rest

Inevitably, as I prep our annual Best Issue, this childhood rhyme plays through my mind: "Good, better, best. Never let it rest. Until the good is better, and the better, best."

Although written to encourage children, the rhyme's message could be more consistently demonstrated in our industry.

The grim truth we learned this year is that the idea of excellence can be grossly distorted in the pursuit of becoming the biggest or the best. The WorldCom executives who hugely misrepresented corporate finances to maintain the company's image as a premier carrier stand as the most extreme case. More pervasive is the practice of forcing substandard fare down users' throats while proclaiming its excellence. For companies that routinely do this, being first to market outweighs being best.

As the economy slugs on, the drive to move good to better and better to best stands the chance of being forgotten altogether. Crimped budgets spur shortcuts. Testing cycles shrink. Problems get worked around, not fixed. Make-do attitudes become commonplace. Eventually, "better" is good enough, and then "good" passes muster.

Yet, being the best always means excelling over all others. You shouldn't be settling for good, or even better — not from your vendors, your network or your staff. Never let that rest.

Beth Schultz, editor, Signature Series
bschultz@nww.com

Best online

Go to our Best Issue portal, at www.nwfusion.com/best/2002, for more stories and special features. You'll find:

Fave rave forum
Find out what products Winn Stephenson, an IT executive with FedEx Services, and other network honchos consider their favorites, then throw your choice into the mix. **DocFinder: 3021**

Best products at a glance
Download an at-a-glance chart of the products profiled in Fave raves, Best of the tests and Wares extraordinaire. **DocFinder: 3051**

More User Excellence Award coverage
Get fun facts about our winner's project, full runners-up case studies, network diagrams and quick takes on more than a dozen honorable mentions. **DocFinders: 3039 and 3041.**

Illustrations by Giacomo Marchesi

One degree between data

When software lets you use data to personalize customer connections, that's one degree of separation. The myriad of choices available to online consumers is staggering. The personal service available at traditional businesses is largely absent online and the pressure is on you to bring it back. Microsoft® solutions for Internet business provide the tools you need to build stronger relationships with your global network of customers and trading partners. Scalable user and content profiling allows you to target content and offer more personalized options including customer-specific catalogs with custom pricing and product information.

Now it's easier for you to aggregate profile data from multiple underlying data sources to leverage existing technology investments and enable richer profiling capabilities. And with built-in business analytics, you can analyze ever-changing user behavior to predict purchasing and browsing preferences, all while delivering real-time recommendations. Plus, through direct support for XML-based data, companies can exchange catalog and order information and integrate order fulfillment systems for seamless transactions. Find out how .NET connected software can help you connect with your customers better. Go to **microsoft.com/enterprise** Software for the Agile Business.

and Dana.

The **Royal Canadian Mint** *wanted to reach its diverse worldwide customers, expand sales of its products, and deliver a highly customized consumer experience, so they used the Web content management capabilities of Microsoft Content Management Server integrated with the e-commerce, personalization and backend data integration capabilities of Microsoft Commerce and BizTalk® Servers. Now the Mint can publish content in multiple languages, draw on customer information from its legacy database, and feed online orders through an existing ERP system, enabling the Royal Canadian Mint to offer customers a richer and more personalized experience.*
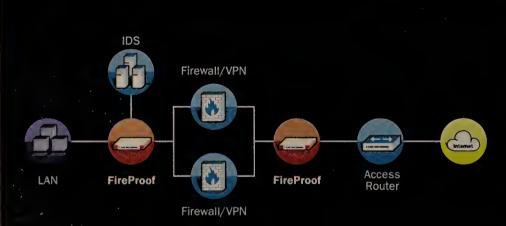
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Fave raves

FIVE NETWORK PROS GIVE US THE SCOOP ON THEIR FAVORITE PRODUCTS, TOOLS THEY SAY ARE SIMPLY 'THE BEST.'

BY JOANNE CUMMINGS

Ed Mann, vice president of network technology planning, Prudential Securities

Years in networking: 27

Product choice: Neoteris' Instant Virtual Extranet

Explanation: "Instant Virtual Extranet is a [Secure Sockets Layer]-based VPN product that lets people securely access Prudential applications and our network using any browser. Users authenticate using [RSA Security] SecurID tokens, giving us full authentication, but they don't need a laptop with VPN software installed. It's great because we don't have to deploy a VPN client to everyone, which is a very big deal. Every time we update a client, we have to get it out to 25,000 people, so Instant Virtual Extranet gives us a huge savings from that perspective. We also gain the flexibility and the functionality of being able to access important applications from anywhere. It's definitely a best tool for us.

Jim White, vice president of IT, Prudential Securities

Years in networking: 16

Product choice: Cisco's Hoot and Holler over IP

Explanation: "In the securities business, most firms use analog 'hoot' technology, which is a two-way, always-on conference bridge that lets analysts or experts speak to a host of offices and give them up-to-date information on equities, bonds, etc. The problem is, it's very expensive, it's prone to failure, and it's difficult to maintain.

"Instead of analog, Cisco Hoot and Holler over IP takes the voice, wraps it up in TCP/IP, sends it over our IP data network and kicks it out at the other end to an analog voice device. It's saved the firm $1.5 million annually vs. the traditional analog system. Plus, a byproduct has been a significant improvement in the meantime to repair. Now if a site causes a problem, we can isolate it and get it on the network in 10 minutes or less. In the past, it could be several hours. It's been a big win for us, definitely a

More online!

Read what Winn Stephenson, an IT exec with FedEx Services, and other network honchos consider their best network products, then tell us about your own favorites.

Ed Mann, left, and Jim White of Prudential Securities name their favorite money-saving products.

Brian Young, CIO, Hobart and William Smith Colleges

Years in networking: 8

Product choice: Symantec's Norton AntiVirus Enterprise Edition

Explanation: "Given the context of an educational institution and students bringing computers to campus, the best thing ever is the enterprise edition of our antivirus program, Norton AntiVirus.

"We clean in the ballpark of 8,000 viruses off of our network and mail system every day, and that is 8,000 viruses that don't get onto campus, don't tie up our help desk and don't infect other things on campus. It has been a tremendous asset, especially in terms of return on investment, with the savings in time, resources and personnel. No two ways about it, it's the best."

Erik Towt, network analyst, Denver Broncos

Years in networking: 5

Product choice: Linksys wireless access points and cards, Compaq iPaqs

Explanation: "Without Linksys, our new Broncos Barn wouldn't be possible. Outside the stadium before games, the Broncos Barn provides entertainment to the fans, with bands and food, etc. We set up Linksys wireless access points so that we can run credit cards out there. Basically, it's in the middle of the parking lot and there's no way to run data out there without ripping out hundreds of yards of asphalt. Using Linksys makes the lot a revenue generator. It's definitely a best.

"Another best is our GamePlus application. In each luxury box in Invesco Field, we have a computer with a touch-screen monitor linked to a wireless network. We pipe out video replays, other NFL games, various stats, explanations of rules and so on. It's very interactive and adds a lot of value for the fans. We're using Compaq iPaqs for the system, so in the larger suites, we can leave them on the bar and people can sit there and play with them. It adds entertainment value, and that's the business we're in."

Jake Star, vice president of computer services, Mohegan Sun Resorts

Years in networking: 16

Product choice: NetScout Systems' nGenius

Explanation: "We've just finished a $1.2 billion expansion of our property, almost tripling the size of our network and physical space. That's made us a really complicated network, and one thing we see from the network side is that the applications guys tend to blame problems on the network. In the past, when this would happen, we'd get a protocol analyzer and go out to wherever the issue was and try to analyze what was going on. With NetScout, we no longer have to do that. We already have the monitors in place and whenever someone's blaming something on the network, we can immediately look at the traffic, model the conversations that our applications have and see exactly where the communication breaks down — because, of course, it's never really a network problem. NGenius is the best because it reduces our downtime, which is money to us. When slot machines are down, we're not making money."

Cummings is a freelance writer in North Andover, Mass. She can be reached at jocummings@attbi.com.

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Best of the Tests

COOL, FAST, PRACTICAL AND MORE, THE 13 PRODUCTS THAT EARNED THE 2002 BEST OF THE TESTS AWARD EXEMPLIFY EXCELLENCE.

BY CHRISTINE BURNS AND KEITH SHAW

Network World bestows its Best of the Tests Award distinction on products and services that have outperformed similar offerings during our rigorous hands-on testing from Nov. 1, 2001, to Oct. 31, 2002.

We divided the more than 230 tested products and services from 170-plus companies into 13 categories based on market focus. Best of the Tests categories are: enterprise servers; enterprise switching/routers; ISP services; multimedia networking wares; network management software; network management hardware; remote-office networking; security infrastructure; security tools; voice over IP; wireless; Cool Tools hardware; and Cool Tools software. The latter two designate products tested as part of our weekly Cools Tools column, a glimpse at high-tech network gizmos and software that can help end-user productivity.

To determine the winner in the first 11 categories, we looked to reviewers' product scores. The highest-scoring products took the prize — with five points representing a perfect score. In cases in which reviewers awarded multiple

products the same, top score, *Network World* editors picked the product that outperformed or outfeatured the others in the test. In the case of Cool Tools, for which no scoring system exists, columnist Keith Shaw selected the products he felt significantly would affect end users or the market for the better.

Cool Tools Software

Visual Communicator Plus from Serious Magic changes the face of personal broadcasting and makes it easier for users to create their own television broadcasts with little more than a Web camera and a decent PC desktop. With a little imagination, businesses can create broadcasts for communications in cases when spending money on professional video services isn't feasible.

Best of the Tests Award winner: Visual Communicator Plus

Company: Serious Magic, www.seriousmagic.com

Date reviewed: July 22, 2002, www.nwfusion.com, DocFinder: 3027

Reviewer's comment: *The software was addictive. We kept coming up with new ideas and ways to use it.* — Keith Shaw

Cool Tools Hardware

One of the first forays into the world of 3G wireless, the Sierra Wireless AirCard 555, a PC card that runs on Verizon Wireless' new Code Division Multiple Access 1xRTT network, blew us away. The two — card and network — working in tandem delivered what was promised: the joy of a high speed wireless connection.

Best of the Tests Award winner: Sierra Wireless AirCard 555

Company: Sierra Wireless, www.sierrawireless.com

Date reviewed: March 18, 2002, www.nwfusion.com, DocFinder: 3028

Reviewer's comment: *Remember how you felt when you graduated from dial-up to broadband for Internet access from home? The pure joy of cruising the Internet, watching streaming video and downloading e-mail at speeds that made it feel like you were using your office's T-1 line? Now you can get a similar feeling in the world of wireless.* — Keith Shaw

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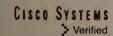
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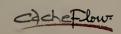
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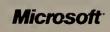
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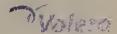
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Enterprise servers

IBM picks up the win in this category because it was thinking outside the box when it built its new xSeries x440 server. This server has eight processors sitting in a 4U (7 inches) rack-mountable chassis that can be linked with a sister box to create a 16-processor server. This ability to scale processors outside the chassis is a novel approach to increasing server horse power that yielded outstanding performance numbers in our tests.

Best of the Tests Award winner: IBM xSeries x440

Company: IBM, www.pc.ibm.com

Date reviewed: Oct. 7, 2002, www.nwfusion, DocFinder: 3029

Score: 4.7

Reviewer's comment: *The x440 is an impressive package of computing performance, scalability, availability and manageability. It should work well in large corporate environments where performance and future protection is important. If you are considering server consolidation, this could be the server for you. IBM has taken server scalability and processor density to a new level with the ability to run eight processors in a 4U (7 inches) rack-mountable chassis and then connect two chassis together to create a 16-processor server.* — John Bass, Centennial Networking Labs

Enterprise switch/routers

Cisco's Catalyst 3550-24, which ships with 24-port Fast Ethernet and two-port Gigabit Ethernet capacity, tops our list of switches tested this year because of its near-perfect performance in our tests. The box produced wire-speed throughput even while handling access control lists we intentionally applied to try to slow it down. Basic Layer 3 performance was picture-perfect with wire-speed throughput throughout our suite of tests and only a 120-microsec latency measurement with 64-byte packets.

Best of the Tests Award winner: Catalyst 3550-24

Company: Cisco, www.cisco.com
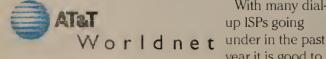
Date reviewed: March 25, 2002, www.nwfusion.com, DocFinder: 3030

Score: 4.4

Reviewer's comment: *Cisco designed its new midrange Catalyst 3550-24 switch to connect access devices to the core of large and midsize enterprise networks, and from what we found with our performance testing, it is well equipped for the task.* — John Bass, Centennial Networking Labs

ISP dial-up services

AT&T Worldnet

With many dial-up ISPs going under in the past year, it is good to see the continued excellence of AT&T's WorldNet service in our performance rankings. While the scores weren't as powerful as last year (some ISPs are catching AT&T), the service still ranks as the best in terms of speedy connections (quick times to log on and high initial connect speeds), and low call-failure rates (fewer busy signals).

Best of the Tests Award winner: AT&T WorldNet service

Company: AT&T, www.business.att.com

Date reviewed: Monthly online, www.nwfusion.com, DocFinder: 3031

Reviewer's comment: *Despite turmoil in the ISP market, AT&T WorldNet still outshines others in terms of performance in the national ISP space.* — Keith Shaw

Multimedia networking

We awarded Vividon's Streaming Delivery Accelerator and its corresponding management software top honors in this category for its high performance and — by virtue of a Web-based management system — high manageability and functionality. And considering its size and resources, we also give kudos to Vividon for exhibiting outstanding pre- and post-sales services in customer facilities.

Best of the Tests Award winner: Streaming Delivery Accelerator

Company: Vividon, www.vividon.com

Date reviewed: Dec. 10, 2001, ww.nwfusion.com, DocFinder: 3032

Score: 4.5

Reviewer's Comment: *If you've been banging your head looking for a streaming media investment, the Vividon solution is a steal.* — Christine Perey, Perey Research & Consulting

Network management hardware

A crucial tool in your "little black bag" to have when your network gets sick should be a handheld network analyzer. These devices can reveal cable faults, detect chattering network adapters, identify switch malfunctions and diagnose the nature of a router malady. Our winner, Fluke Networks' NetTool, offers essential cabling and network health tests for an excellent price and value.

Best of the Tests Award winner: NetTool

Company: Fluke Networks, www.flukenetworks.com

Date reviewed: July 1, 2002, www.nwfusion.com, DocFinder: 3033

Score: 4.8

Reviewer's comment: *Fluke's NetTool accurately pinpointed cabling and network faults with aplomb, and without a fancy color display or extra bells and whistles.* — Barry Nance, independent consultant

Network management software

In our recent test of network management systems/frameworks, we found that four products we tested were mature, well-crafted and thoughtfully designed products. But with its wealth of features, useful reports and consistent user interface, Hewlett-Packard's OpenView edged out the others in our tests. While frameworks have gotten a bad rap, we've found that the vendors have improved their products significantly and might be worth another look.

Best of the Tests Award winner: HP OpenView

Company: Hewlett-Packard, www.openview.hp.com

Date reviewed: Oct. 21, 2002, www.nwfusion.com, DocFinder: 3046

Score: 4.8

Reviewer's comment: *OpenView excels at managing diverse devices through a consistent interface, monitoring network resources and reporting network activities. OpenView scales well, runs on several different platforms and makes network administration a much easier job.* — Barry Nance, independent consultant

Remote-office networking gear

The GigaFast EZ500-S touts an innovative, fanless (hence noiseless) design, good price, performance and ease of use. While it only has one gigabit port, that makes it a good choice for small offices/home offices that need a boost but don't want to pay a ton for pure gigabit throughput. This product really gives this very focused target market what it needs.

Best of the Tests Award winner: GigaFast EZ500-S
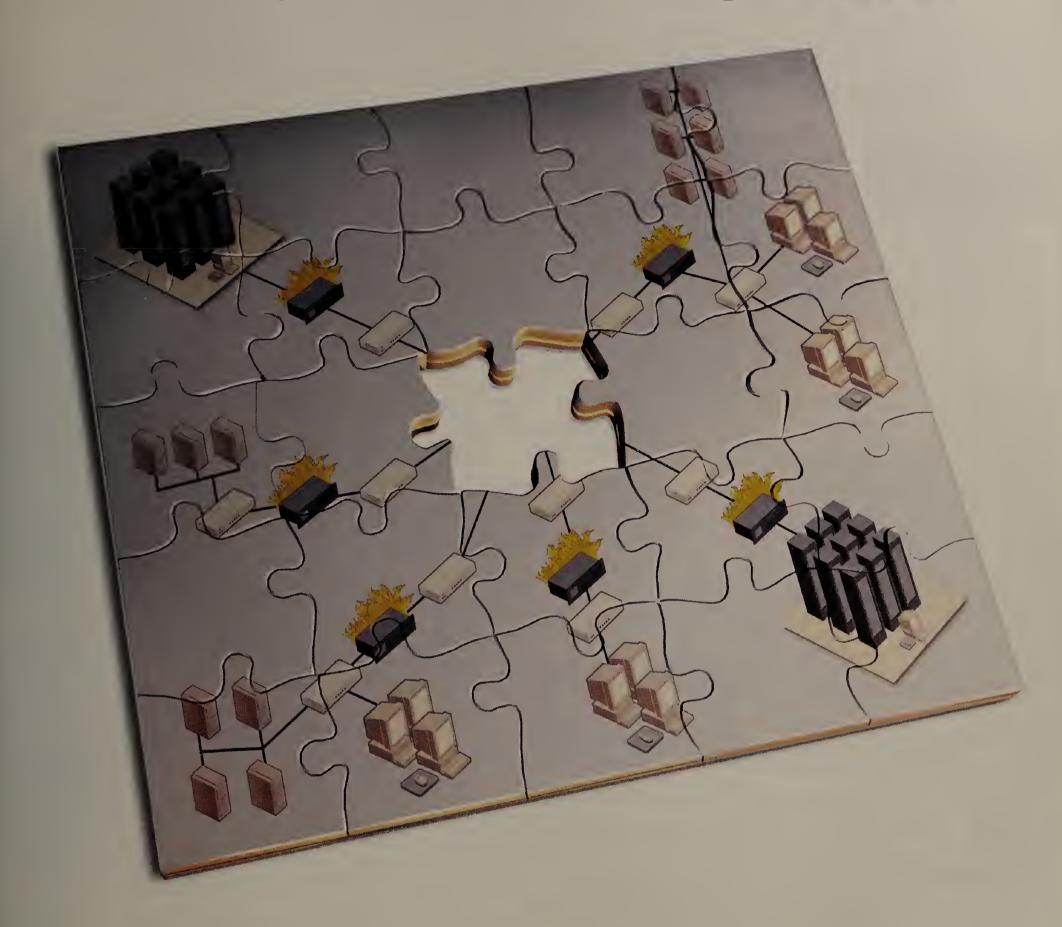
Company: GigaFast, www.gigafast.com

Date reviewed: Feb. 11, 2002, www.nwfusion.com, DocFinder: 3034

Score: 4.8

Reviewer's comment: *We assumed there wasn't anything new to report in the world of 10/100M bit/sec switches. However, GigaFast EZ500-S proved us wrong.* — Mike Avery, contributing *Network World* reviews editor

Finally - the missing piece!

Today's ever-growing data centers make it harder than ever to get hands-on control of all your servers and network devices. Now you can have direct access to every device in your data center from any location, all from a single screen. Manage and maintain servers in your local rack or across the world.
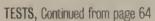
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The *Best* Issue

TESTS, Continued from page 64

Security infrastructure

Our recent review of remote access VPN offerings shows that Cisco clearly built the VPN 3000 series Concentrator and the Cisco VPN 3002 hardware client with an enterprise deployment in mind, giving it the edge over competitor Check Point Software to win this category. The VPN product combination affords network professionals excellent client-management features, strong policy setting and policy maintenance tools, a built-in client-side firewall and solid reporting.

Best of the Tests Award winner: Cisco VPN 3000 Series Concentrator and Cisco VPN 3002 Hardware Client

Company: Cisco, www.cisco.com

Date reviewed: Oct. 28, 2002, www.nwfusion.com, DocFinder: 3047

Score: 4.7

Reviewer's comment: *Cisco clearly considered the issues of enterprise remote access and built excellent products that are easy to use, deploy and update, but are not arbitrarily limiting in terms of policy, platform or features.* — Joel Snyder, Opus One

Security tools

EEye Digital Security's network vulnerability scanning tool, Retina, bests this category because of its speed and accuracy in pinpointing security holes in an enterprise network and for its intuitive management interface and its ability to fix some vulnerabilities when they are pinpointed.

Best of the Tests Award winner: Retina 4.7

Company: eEye Digital Security, www.eeye.com

Date reviewed: Feb. 4, 2002, www.nwfusion.com, DocFinder: 3035

Score: 4.3

Reviewer's comment: *Retina is lightning fast, scanning our 12-system test network in less than 5 minutes.* — Mandy Andress, ArcSec

VoIP

Alcatel e-ND's 4980 IP-based soft phone was clearly a cut above the other products tested in this category. This product supports more than 90% of the traditional corporate telephone features, and it topped the ticket in terms of installation, ease of use and configuration.

Best of the Tests Award winner: e-ND 4980

Company: Alcatel, www.alcatel.com

Date reviewed: Feb. 25, 2002, www.nwfusion.com, DocFinder: 3036

Score: 4.65

Reviewer's comment: *In the features realm, this product supports 37 of the 41 features we deemed necessary for use in a corporate setting.* — Miercom

Wireless

In a year that has seen 802.11b take off in corporations under intense security pressure, we are happy to honor the Bluesocket WG-1000 wireless gateway in this category. We found it successfully protects your wireless resources.

Best of the Tests Award winner: WG-1000 wireless gateway

Company: Bluesocket, www.bluesocket.com

Date reviewed: April 8, 2002 www.nwfusion.com, DocFinder: 3037

Score: 4.1

Reviewer's comment: *The WG-1000 is an agnostic way to contain and manage wireless LAN users while leveraging internal authentication mechanisms and VPN elements provided.* — Tom Henderson, ExtremeLabs

Testing winning products

Network World regularly recognizes outstanding products that have gone through our testing procedures. We honor these products via two awards — the Blue Ribbon Award, for products that have scored the highest rating between a 3.5 and 4.4 in comparative reviews; and the World Class Award, for those products that have scored a 4.5 or greater in a comparative or stand-alone review. The following products have earned these awards in the past year.

Blue Ribbon winners

Winner BLUE RIBBON

Here's a look at the eight products that have earned Network World's Blue Ribbon designation for earning the highest grade between a 3.5 and 4.4 in comparative reviews with like products in the past 12 months. The reviews are online at www.nwfusion.com, **DocFinder: 3048.**

Brocade Communications' SilkWorm 12000

Cisco's Aironet and ACS

Compuware's EcoPredictor 3.2

EEye Digital Security's Retina

Efficient Networks' 5930 Business Gateway

Netgear's FR314

Phonex Broadband's NeverWire 14

Reality Fusion's SeeSaw Distance Meetings

World Class Awards designees

WORLD CLASS Winner

Here's a look at the 14 products that have earned Network World's World Class Award for a score of 4.5 or greater in either a comparative or stand-alone review in the past 12 months. The reviews are online at www.nwfusion.com, **DocFinder: 3049.**

Alcatel's e-ND 4980

Ateonix Networks' NASAS-2040 NAS server

Blue Coat's Security Gateway

Check Point's FireWall-1 NG on Nokia IP350, Nokia internet security appliance, SecureClient

Cisco's Cisco VPN 3000 Series Concentrator and Cisco VPN 3002 Hardware Client

Dantz's Retrospect Server Edition

Fluke Networks' NetTool Connectivity Tester

GigaFast's EZ500-S

Hewlett-Packard's OpenView

Linksys' EG0801 SK Instant Gigabit Etherfast 10/100/1000 Workgroup Starter Kit 8

Lucent's VitalSuite

RouteScience Technologies' PathControl

Vividon's Streaming Delivery Accelerator

WireOne's Glowpoint

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FIVE OF OUR COLUMNISTS NAME THE WINNERS OF OUR ANNUAL CATEGORY-BREAKER AWARD.

The Pick: PestPatrol

PestPatrol, www.pestpatrol.com

By Winn Schwartau, On Security columnist

AN EXTERMINATOR FOR PESKY COMPUTER BUGS

The late Grace Hopper, mother of modern computing, once remarked that when her 12-ton, room-sized tube computer operated erratically, it was because of a bug. Literally. A moth. And a half century later, no matter what we do, our computers are still "buggy."

But today, the worst bugs are the offensive, destructive and privacy-violating bugs; bugs on the attack that maliciously target computers and the operators behind the keyboard. They are those pesty and pesky Trojan horses, spyware, talkative cookies, hostile code and hacker tools that break past firewalls, intrusion-detection systems, antivirus software, VPNs, password protection tools and almost any other technical security measure you might implement.

My choice for security product of the year solves these problems and one other significant one: the insider threat. Statistics show more than 80% of investigated computer crimes involve current or former "trusted" insiders who had or have network access. But little attention has been focused on how to deal with this obvious and well-documented (albeit, perhaps politically incorrect) threat.

PestPatrol's PestPatrol is unique security software that detects and eradicates nearly 60,000 known "pest-ridden" (non-viral) software bugs, coming from more than 11,000 distinct families (as of September 2002). Have you thought about the garbage that might be rummaging around

your office's desktop computers now, not only violating privacy but also perhaps broadcasting corporate information to distant listening posts?

Do you know which employee is running steganographic software so he can send secret encrypted messages? Who's using hacker tools? Who's trying to download hostile code from the 'Net? Do you know or can you currently control the myriad cookies that broadcast yourcompany.com information to the Internet when your users log on? And what about that indecent invasion of privacy caused by unwanted spyware? The lists go on and on, and all you need do is ask one simple question: "Do you want to keep malicious code off of your computers or not?"

If you want your desktops free from the stench of hacker tools, password crackers, keystroke loggers, port scanners and more, then PestPatrol is for you.

Consider remote administration tools (RAT), such as Back Orifice, SubSeven or NetBus. These Trojans communicate from the desktop to a distant server — generally without permission. They are a huge security breach, along with thousands of

other applets and attack code. PestPatrol is designed to keep updating itself with the latest file detections for RATs and other pests, and to look through memory and media to find the executables, help and associated files that need eradicating.

When I loaded PestPatrol onto my highly secure desktop computer, I was astounded to find 42 hostile applets and related pests that snuck past two firewalls and my ever-current antivirus software. I have tight restrictions on ActiveX and Java, no Visual Basic Script allowed — yet all of these pests managed to get through. How?

Pest designers do their best to sneak in subtly, under your detection systems and past your defenses. It's their job. Your job is to keep hostile software off of user desktops, out of your corporation, maintain high levels of privacy, not expose your company to unnecessary risks and create a secure working environment.

You can't do that without PestPatrol.

Schwartau is president of Interpact, a security awareness consulting firm. He can be reached at winns@gte.net.

The Pick: iFolder Professional 2.0

Novell, www.novell.com

By Dave Kearns, Wired Windows columnist

FILE SYNCHRONIZATION MADE EASY

When I first previewed NetWare 6 in July 2001, some of the new functionality built into the system really struck me. In particular, the new iFolder utility for file synchronization caught my eye.

This utility lets you create a subfolder of your Windows desktop's My Documents folder and have the files you put in it automatically updated in an encrypted format on a NetWare server whenever a change is made to a file. Installing the iFolder client

on any other machine guarantees that all the covered files are synchronized on all the desktops so configured. A Web browser also can be used to access the iFolder server and upload or download files should you be somewhere that you shouldn't, or can't, install the iFolder client.

All this is good — so good that Novell didn't take long in figuring out that not only is iFolder a good NetWare 6 utility, but also it could be a desirable applica-

tion on its own — and easily could be pushed beyond the NetWare platform.

So this April, Novell launched iFolder Professional Edition 2.0 as a stand-alone product. It has all the features of the NetWare utility, but adds new functionality and support for additional platforms. It supports NetWare 6 and NetWare 5.1 SP3, Windows NT4 SP6a and Windows 2000 SP2, RedHat Linux 7.1/7.2 and Solaris 8 operating systems. It requires the Apache Web server for NetWare, Linux and Solaris and Microsoft's Internet Information Server for Windows. While this first release requires Novell's eDirectory, future versions are supposed to work with any certified Lightweight Directory Access Protocol-based directory system.

The product is ideal for users who frequently move among two or more client PC environments — even for people who like to work from home occasionally. The iFolder client sets up quickly and easily

(you can let users download it from your corporate Web site), and the ability to access the iFolder files from any Web browser means that no one ever needs to be without a critical file so long as they have Internet access!

I use iFolder more than any other new NetWare feature. And if I had a mobile workforce, I'd want all my employees to use it. It takes less than 5 minutes to set up the client, then no time at all for users to maintain it. Files are synchronized automatically whenever they change.

We often talk about no-brainers, but iFolder Professional truly requires no thought at all to use — and use effectively. It just works. What more can we ask?

Kearns is a writer and consultant in Silicon Valley. He can be reached at info@vquill.com.

Don't make me come over there.

WARES, Continued from page 68

The "Pick: SuperAgent 2.0

NetQoS, www.netqos.com

By Johna Till Johnson, Eye on the Carriers columnist

MEASURING THE TRUE USER EXPERIENCE

Network executives are all too familiar with the battles between application and infrastructure groups over slow application response times. Application developers blame the overloaded network, and network managers blame poorly designed applications.

Users care only about glacial responsiveness. Time spent waiting for an application to react translates into lower productivity and, often, into reduced revenue — exactly what most businesses in today's economy can't afford.

A new class of products that provides what I call "quality of experience" (QoE) measurement is emerging. These tools let IT executives quickly and effectively diagnose performance problems on networked applications, pinpointing the cause of application delay. More impor-

tantly, with the help of these tools IT executives can implement fast, permanent fixes.

SuperAgent 2.0 from NetQoS is an outstanding example of a sleek, well-designed, elegant QoE monitor. The SuperAgent appliance connects to a mirrored switch port or network tap near the server farm and examines TCP header information to measure application response time. It breaks down response times into several components:

• Connection time, the time it takes to establish a TCP session between the client and server, which helps determine if there are performance problems overall.

• Server response time, the time elapsed between initial client request and a response from the server, which helps uncover server performance problems.

• Data transfer time, the time between the server's first and final data responses, which can indicate problems with the server or the network.

• Data retransmission time, which tracks the delay introduced by retransmitting data over the network.

• Network round-trip time, the time it takes a packet to traverse the network, which helps uncover network performance problems.

SuperAgent is a passive monitor, meaning it doesn't increase network load (a great feature in a performance tool). It also tracks responses interactively, meaning it checks performance multiple times during one TCP session. Other tools, in contrast, measure response time once, at the start of the session. The problem with that approach is it doesn't account for

changes as time goes on; performance could degrade, and the tools wouldn't know why.

SuperAgent stores its results in a SQL database that can be accessed via a Web-based interface. It also will deliver reports and alarms via e-mail or populate an existing management system. Using NetQoS' Reporter-Analyzer, you can combine this information with information from outside sources, such as Cisco NetFlow, NetScout probes and NetIQ response-time agents.

When *Network World* tested this product earlier this year, it proved easy to install and highly accurate, and it delivered as promised on all points (www.nwfusion. com, DocFinder: 3026). I can't improve on tester Bob Currier's final words, "SuperAgent 2.0's combination of functionality, reliability and superb reports make it a definite 'must have.'"

Johnson is president and chief research officer at Nemertes Research, which provides quantitative research on the business impact of technology. She can be reached at johna@nemertes.com.

The Pick: iHateSpam

Sunbelt Software, www.sunbeltsoftware.com

By James Kobielus, Above the Cloud columnist

SHIELDING E-MAIL FROM SPAM BLASTERS

Spam is the cosmic background radiation from the Internet's rapid expansion into our everyday lives. Spam is everywhere, coming from seemingly every direction. But that doesn't mean that I have to accept it or that I have to subject my e-mail system to a continuous, corrosive stream of incoming junk.

Spam threatens to debase e-mail as a communication medium, just as junk postings slowly rendered many Usenet groups uninhabitable. I like Sunbelt Software's innovative iHateSpam client software because it lets me totally shield my e-mail in-box from spam. At the same time, the product lets me inspect every message that comes my way, just to make sure it didn't block or discard any important e-mail.

iHateSpam is certainly not the only client-based antispam tool on the market, but it is the only client-based product I've come across that builds "whitelists" by scanning your Microsoft Outlook e-mail address book and your Outlook client-side message folders. iHateSpam also is the only client-side antispam tool that quarantines any incoming mail that doesn't come from a whitelisted sender. Whitelist-based antispam filtering is the only effective way to

ensure a continuously spam-free in-box. Another plus is that iHateSpam lets users dynamically adjust the client-side rules to ensure the tool doesn't mistakenly filter out legitimate bulk e-mails — such as e-mailed newsletters — that they regularly receive.

The product's name is none too delicate, but it succinctly expresses the user's primary motivation for seeking it out. iHateSpam comes in separate versions for Outlook and Outlook Express, both downloadable from Sunbelt's Web site. The product installs quickly and easily, and setup is straightforward.

Upon setup, the software creates a whitelist of accepted e-mail senders — also known as a "friends list" — by retrieving addresses from users' e-mail address books and by scanning existing client-side mail folders for the addresses of senders of stored e-mail. iHateSpam prompts the user to define an acceptable spam-filtering threshold, ranging from the stringent "all spam" (which also might quarantine non-spam such as online newsletters to which the user has subscribed) to the more permissive "some spam" (which will only catch junk mail with easily identifiable spam indicators). Users can define a per-

sonal "enemies list" of addresses from which incoming e-mail is always blocked, and more fine-grained personal filtering rules keyed to contents of message headers, subjects, bodies and attachments.

One of the most powerful and dynamic features of iHateSpam is the client software's participation in a peer-to-peer online "Learning Network" hosted by Sunbelt (similar to rival peer-to-peer antispam communities such as Cloudmark's SpamNet). Users can designate any message in an in-box or a quarantine mail folder as "is spam" or "not spam" by clicking on buttons embedded in the mail client. When a user designates a particular message as spam, the iHateSpam client software sends a pattern of that message to an automated rules-creation engine in the Learning Network. The engine tabulates "votes" from all deployed iHateSpam clients, ranks messages by the probability of their being spam, and automatically creates new spam patterns and filtering rules. The engine regularly distributes updated spam patterns and filtering rules to all iHateSpam clients. As a final check, Sunbelt personnel review all patterns and rules before their distribution, just to make sure they're accurate and

that user cliques aren't unfairly ganging up on legitimate commercial expressions (such as a competitor's e-mail-based direct-marketing pitches).

A big caveat for iHateSpam is — and for any antispam solution — that it relies on client-based rules-filtering. The product consumes CPU cycles on client machines, and briefly freezes the mail client while scanning, filtering and handling incoming mail. This computational load can be a significant burden on low-end workstations and can prove disruptive for users who receive a lot of e-mail, especially as the set of spam patterns and filtering rules grows. Ideally, much of the filtering should be done on a centralized basis by mail gateways hosted internally by an enterprise customer or externally by Sunbelt. However, the vendor has not decided whether to evolve iHateSpam in that direction. Clearly, the product will hit a scalability wall soon, might not be appropriate for broad corporate adoption and can't address spam-based distributed denial-of-service threats if it doesn't centralize some CPU-intensive mail-filtering processes.

Nevertheless, Sunbelt's iHateSpam delivers clear value where it counts: by enabling users to keep spam from constantly interrupting their lives and cluttering up their in-boxes.

Kobielus is an Alexandria, Va., senior analyst with Burton Group. Reach him at jkobielus@burtongroup.com.

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If they come you will

WARES, Continued from page 70

The Pick: Virtela VPN

Virtela Communications, www.virtela.com

By Steve Taylor, Packet Evangelist columnist

VPN SERVICE WITH A TWIST

Truly unique ideas are rare. Less rare, and generally more productive, is taking a couple of old ideas and combining them in a unique fashion. This latter type of innovation makes Virtela Communications' Virtela VPN my choice as a category-breaker.

Several givens are shaping the long-haul services market. Companies are demanding extremely reliable services. Stability of individual facilities-based service providers is a primary concern. The price has to be right. And most of the network traffic is evolving to — if it isn't already — IP.

Add to this a couple of industry-related factors. On the services side, most facilities-based carriers have vastly overbuilt their IP backbones, and the majority of the Internet backbone is, in reality, lightly utilized. Still, users are concerned about the lack of control and quality of service (QoS) in the Internet, especially if their traffic is primarily handled by one ISP.

On the equipment side, several vendors now offer IP service switches that provide tunnel management and measure QoS across IP backbones. These switches let service providers control a large number of secure tunnels and to impose a number of QoS parameters across the otherwise less-than-ideal IP backbone.
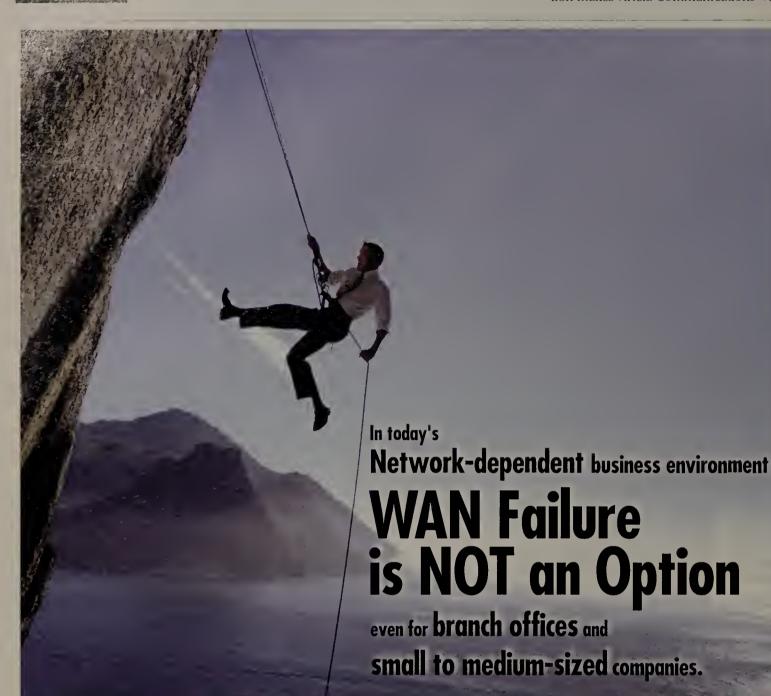
Throw in the reality that most service providers have historically bought and bartered bandwidth from other service providers — the carriers' carriers. This long-established, but not widely publicized, practice lets carriers provide bandwidth to each other over physical fiber or large dedicated bandwidth pipes that is subdivided and resold to corporations.

Virtela has taken advantage of the best of each of these factors to create a next-generation VPN service that provides QoS. It doesn't own its core network. Instead, it buys otherwise unused Internet bandwidth in bulk from facilities-based carriers. Then it puts its own IP services switches on the edge of the network so it can add QoS and secure tunnel management on the outside.

This multicarrier approach brings three fundamental benefits (see story, page 87). First, because Virtela is buying bandwidth without the network infrastructure, it can offer the service at an attractive price. Second, the service switches let Virtela superimpose QoS with some strict service-level guarantees. This is possible because if one network is not providing the desired service level, Virtela simply can switch the traffic to a different part of the Internet backbone. Third, for those concerned about the future and stability of individual providers, the multiprovider approach gives several back-up paths, insulating customers from a single-carrier network failure.

Virtela, one of *Network World's* 2002 10 start-ups to watch (www.nwfusion.com, DocFinder: 3025), offers a number of enhanced services, including turnkey voice and video, on top of this VPN backbone. But the company's unique infrastructure and market approach really provide the power behind the service.

Taylor is president of Distributed Network Associates in Greensboro, N.C., and publisher of Webtorials.com. He can be reached at taylor@webtorials.com.

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Upgrade ingen

Picking the winners

The User Excellence Award, in its 18th year, honors user organizations that demonstrate exceptional use of network technology to further business objectives. *Network World* editors select winners from a pool of entries submitted by user organizations or vendor representatives.

In evaluating entries, we look for companies that have adapted mainstream technologies creatively or have applied newer infrastructure technologies to solve pressing business problems. Winning projects tend to create great business cases, showing how technology leads to vast savings, new opportunities or demonstrable productivity gains.

Royal & SunAlliance USA won the 2002 award from among more than 50 entries by accomplishing the unheard-of. It enlisted the help of its nearly 7,000 employees to perform a massive PC upgrade from Windows 95 to XP, saving an immediate $1.5 million in contract labor costs while closing security gaps that, until fixed, made it ineligible for worldwide security ISO certification. In the process, it kicked off an identity management system, turned users into partners on software license compliance, and discovered ways to lower software costs and outsourced help desk fees.

The U.S. Department of Veterans Affairs and Wells' Dairy are runners-up. The VA deserves honor for an enterprise content delivery network that delivers distance-learning and telemedicine applications, while Wells' won for a convergence project that [...] (see page 84).

Additional companies earned honorable mentions. Their profiles are at www.nwfusion. com, DocFinder: 3042.

ROYAL & SUNALLIANCE USA WINS THE 2002 USER EXCELLENCE AWARD FOR A MULTIFAC NETWORK PROJECT THAT TURNED END USER IT PARTNERS, WHILE SAVING BIG BUCKS.

BY JULIE BORT

To fully appreciate the network project that won insurance giant Royal & SunAlliance USA the 2002 User Excellence Award, put yourself in the shoes of Roger Thibodeau, chief network executive. Your brand new CTO, Chris Heeley, was hired in May 2001 to oversee strategic infrastructure planning. Heeley almost immediately must break his sacred keep-it-simple project management rule with a $3.2 million doozy for which he's named you project manager. You've got to upgrade 7,000 Windows 95 PCs to XP while your network staff simultaneously rolls out Active Directory as the core of a new identity management system, switches to a new software distribution server and implements self-service password management, among other tasks.

Your first thought was to get help from the outside. But a cost estimate based on rates and timelines from your usual contractors tallied $1.5 million with a sometime-in-2003 completion date for the operating system cutover alone. You've only got until December 2002 to complete the project, from planning through completion — with a scant four months to upgrade 7,000 PCs.

You're certain that the network can be your workhorse. With a little customization done by your staff on XP's self-installation feature, Remote Install Service (RIS), the network can push the install program to the clients without CDs. (You shove from your brain the risk in choosing XP, which at the moment — September 2001 — Microsoft hasn't released for production yet. You've beta-tested XP, and know you want the operating system for its remote control and other built-in features. Plus, Microsoft has revealed that it will shortly cease supporting your other option, Windows 2000.)

But who would initiate the install on each machine

and do the backup, restore and troubleshooting throughout your 94 offices, including the Charlotte, N.C., headquarters? You and Heeley conclude each user is the most expedient choice, although many R&SA USA employees are not especially computer-literate. The process must be so simple that users can upgrade their PCs themselves with minimal oversight, regardless of technical prowess.

Mission impossible? The network infrastructure team proved not. Not only did R&SA USA's team conduct a massive self-service operating system cutover, but in the process, it also certified that the company's 450 applications would work with XP, inventoried IT resources and instituted a corporatewide software license compliance program.

Better still, the project converted business managers and end users into partners for software license compliance and application training. This while making infrastructure folks into corporate stars as employees gained a better understanding of IT processes.
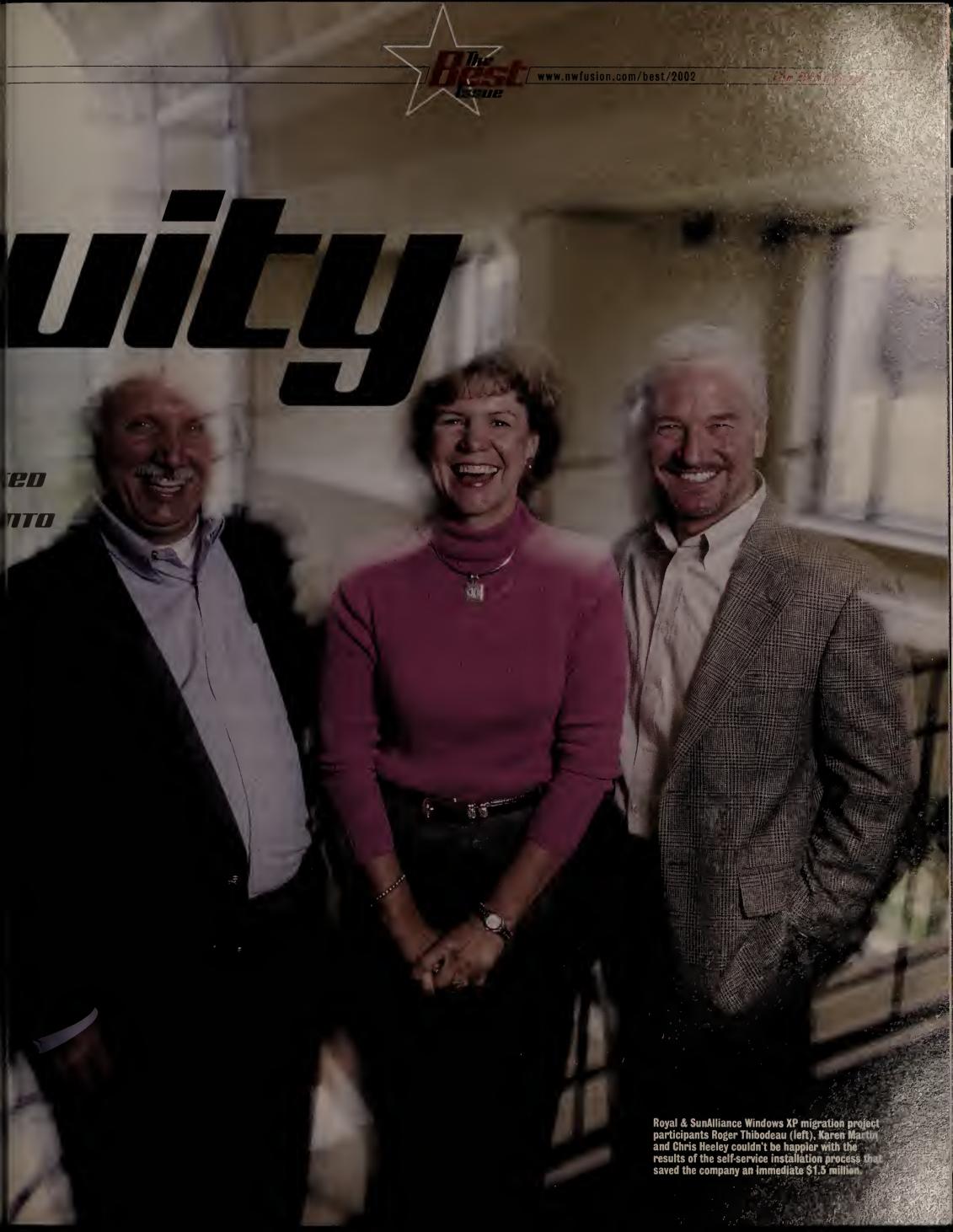
And not one person involved filed a complaint against the project to the CIO or other senior managers, Heeley says.

End users actually begged for their turn at the upgrade, Thibodeau adds.

For its creativity in crafting an almost painless operating system cut-over process that saved $1.5 million in contract labor fees while improving security and turning end users into IT partners, R&SA USA wins the 2002 User Excellence Award.

From liability to asset

The plan was either ingenious or a death trap. "We

Royal & SunAlliance Windows XP migration project participants Roger Thibodeau (left), Karen Martin and Chris Heeley couldn't be happier with the results of the self-service installation process that saved the company an immediate $1.5 million

Easing
Technical Services
for the
Storage Administrator

— BY STEVE KENNISTON

One section that is getting more and more attention on Requests for Quotes (RFQs) today is the section that deals with vendors' Technical Support. Technical Support is increasing as a key buying criteria for storage end users in today's economy.

Why?

1. The technical talent pool to manage and service network storage is limited

2. Costs to have great technical resources on staff are prohibitive

3. Training costs and ongoing proficiency commitment is high

4. Networked storage interoperability is still a nightmare

So what do IT professionals want from their storage vendor when it comes to technical service? First, they would like a Technical Services portal that:

- Has a very user-friendly, intuitive on-line knowledge base that enables the IT administrator to answer relatively simple questions quickly and easily
- Allows access to all service cases (opened and closed) that shows the progress being made on a case without having to call the support center
- Shows, *pro-actively*, known software issues so that the IT administrator can catch known problems before they happen
- Has the ability to transfer data from applications and middleware at the customer site to vendor site for analysis

IT professionals also want the vendors to know their environment as technical support calls happen. If Technical Support has this information, then the end-user does not have to spend a great deal of time explaining the environment, but can focus on describing the symptoms of the problem in an effort to solve the crisis at hand. In addition, a key metric in any technical support organization is *time to resolution* (TTR).

Providing the tools described above, allows the end user to take a larger portion of problem solving into their own hands and allows them to better manage their issues, yielding a better TTR. Simple benefits of a system such as this allow:

- End users to not have to spend endless hours on the phone trying to explain their environment.
- Vendors to not require a large staff of "pre" support people to manage phones and use these resources to problem solve.

Why doesn't this happen today? One issue has to do with communication within the company that provides the technical support. In many instances, clients hire the vendor to do some type of implementation. When the implementation is complete, the details of the implementation are to be entered into a database so that they can be referenced by Sales, Consulting, and Support. However, most companies do not have this level of infrastructure or documentation tools and if they do, access to the information is difficult. When end users call the support center, they are often frustrated with the vendor's lack of information about their specific configuration. The end user looks at this situation, as "The Company" was here yesterday "The Company" ought to know my environment. Nevertheless, the reality is that different people in different organizations who do not typically communicate have worked or are working on the issues.

So what is the answer? How does a vendor provide proactive technical support? The first answer is for them to devise the portal as previously discussed. Giving users access to information is the first step. This limits the number of calls to the support center and allows support professionals to spend more time helping customers solve real problems.

The next step is to enable the portal to collect data at the customer site. This data would be collected at the vendor site. When a client calls the

vendor, the vendor would have access to the information that makes up the end-user's environment. The information that could live within the portal could be:

- Server type with OS version and patch levels
- Storage subsystem type including disk drive firmware
- Tape device type including firmware
- Application version including patch levels

If this data were automatically collected on a regular basis then when a call came into the support center, the support professional could begin asking questions related to the problem the user is experiencing versus trying to capture all of the above data. In a perfect world, the portal would compare the data captured to a supported matrix. If there were any anomalies between supported configurations and the existing configuration, this information would stand out first and could be given to the end user very quickly in a first attempt to solve the problem.

Utopia

Wouldn't it be great if the portal could report to the end-user when a change is made in the infrastructure that it is "un-supported" or that it could send a list of known issues that exist in the new configuration. End-users could receive an email that states what the issues are or they could log into a website that had this information. The information that could be viewed could then set goals for IT professionals each day when they arrived at the office to spend an hour or so making sure that the environment is rock-solid. This type of pre-emptive strike against the environment can prevent issues that cause downtime in the future.

To really go for the gold, it would be fabulous if these portals also collected information such as:

- Performance data
- Data growth statistics
- CPU utilization
- Paging and memory usage
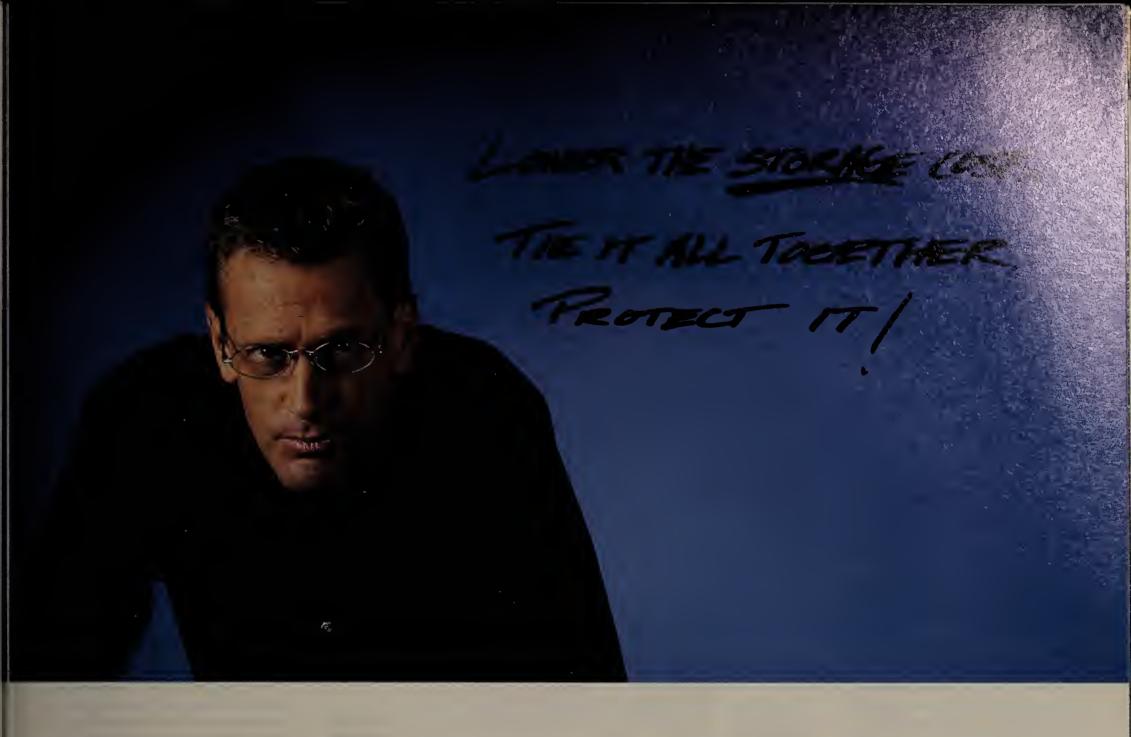
If the portal could then compare all of this data with data from "like" or peer end-users and recommend tweaks to the environment to better control data growth or increase performance, this would allow IT professionals around the globe to learn from each other and for lesser-experienced system administrators to gain and share knowledge that does not exist today.

Who provides service like this today? Very few vendors do. The reason is that the technology for support organization has not existed until recently. Luminate, recently purchased by EMC, has technology that works on supporting a portal. Another company that has made a good deal of strides in this area is Motive. Both companies have spent a good deal of time focusing on technical support that has been neglected for some period of time. Additionally, original SSPs, like Storage Networks, established portal-based services just for this reason.

While all of this sounds great, the reality is there are some potential issues with this philosophy. Some companies may not want vendors having access to this information. Financial institutions may not legally be able to let certain information outside their environment, making troubleshooting a little more difficult. One option would be to see if the same vendor support portal could be implemented internally whereby the vendor could send information to the client, such as supported configurations. Whatever the plan, it all depends on leveraging the information that lives in the infrastructure. Support is difficult. Anything that can be done to help vendors and clients to work together is sure to get continued consideration as value-add in the RFQ process.

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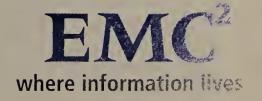
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had considerable opportunity to fail. It could have been the shortest job of my career," Heeley quips.

Begging off for more time was not an option. The CIO mandated the fixing of problems discovered during a security audit conducted in the fall of 2001 by R&SA USA's parent in London, the seventh-largest property and casualty insurance company worldwide. R&SA conducted this audit as part of a global effort to implement international computer security best practices, which has led the company toward security seal-of-approval, ISO 17799 certification. Corporate gave R&SA USA until December 2002 to comply with the auditor's recommendations.

A new client operating system fixed a major flaw discussed in the audit: Windows 95's weak passwords, bypassed simply by clicking cancel. Thibodeau cites other reasons for the move to XP — support for new equipment such as digital cameras for insurance adjusters and built-in remote control features, good for assistance from the help desk and application training from business managers.

Building a software mall

A wayward software distribution program, Novadigm's Enterprise Desktop Manager (EDM) software, also needed immediate fixing. EDM, purchased in 1997, had two nasty habits. For one, it overwrote Dynamic Link Libraries (DLL) used by older DOS and mainframe applications each time it pushed out new code, such as antivirus updates. That meant after each EDM session, mission-critical applications on people's desktops would crash, Heeley says. Second, when updating, EDM assumed control of target PCs at the next login, even when that meant pushing an enormous file at a user dialing in from the road for a quick e-mail check.

"It was so bad that someone actually put a sign on one server that said, "Turn me off on Thursday so I don't get EDMed,'" Heeley recalls.

In August 2001, while in discussions with Novadigm's CEO over fixing EDM, Heeley learned of Novadigm's new product, Radia. Like EDM, Radia pushes out software updates, but gives users three times to refuse a download. More importantly for this project, end users can download their own applications, per policies and licenses, from an intranet "software mall."

R&SA USA took stock of all software and hardware assets using Peregrine Systems' Asset Management software. It discovered 450 applications to place in the mall. "We found software and media that we didn't even know about," says Tricia Laurion, a network engineering project manager. Before this, R&SA USA had no such inventory.

The inventory even became the basis of another money-saving project. Thibodeau says he is negotiating higher-volume agreements on licenses for duplicate mapping software and other titles that individual offices buy.

So Radia solved two problems for R&SA USA: the software license control issue named in the security audit, and the challenge of how end users would reinstall applications during the upgrade.
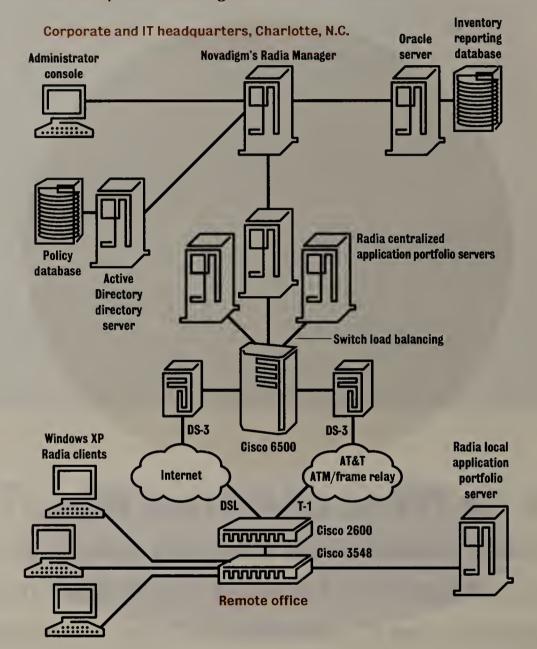
With the technology means for the self-service cutover

Centrally managed, locally placed

In orchestrating a self-service client operating system upgrade, Royal & SunAlliance implemented a new software distribution system using Novadigm's Radia Manager. Centrally managed servers push updates to servers at each remote office so users download new software over the LAN. Meanwhile, IT maintains hardware inventory and user profile/access rights in central databases.

Corporate and IT headquarters, Charlotte, N.C.

Administrator console — Novadigm's Radia Manager — Oracle server — Inventory reporting database

Policy database — Active Directory directory server

Radia centralized application portfolio servers

Switch load balancing

DS-3 — Cisco 6500 — DS-3

Windows XP Radia clients — Internet — AT&T ATM/frame relay — Radia local application portfolio server

DSL — T-1 — Cisco 2600 — Cisco 3548

Remote office

materializing, Thibodeau and Heeley turned their attention to the business side of the house. They enlisted the support of Karen Martin, who manages the 26 facility managers overseeing R&SA USA's remote sites. With her backing, those facility managers became project touchstones, preparing their sites for XP deployment with duties such as scheduling upgrade days, arranging for teleworker updates and being the XP guinea pigs.

"She made the facility manager's role as site liaison part of their jobs, included it in their performance review. We could never have done this without that kind of support," Thibodeau says.

Martin adds that her crew was an obvious choice because many are technically adept. Some are even former IT members from the days before R&SA USA outsourced its help desk to IBM, when all large offices had a full-time IT staffer.

By October 2001, the infrastructure team had completed the major steps of the self-service plan and had begun work on the several large issues remaining.

Remembering the pain of EDM, Thibodeau created a team to certify that any application put into the Radia software mall would work with XP and Internet Explorer 6.0. One of the team's tasks would be fixing DLL conflicts, Thibodeau says. But should applications still break after installation, Radia's "self-healing" feature

would repair broken applications automatically the next time a user logged on to the network.

Getting active

R&SA USA also had to roll out Microsoft's Active Directory because Radia relies on the directory service to store a user's identity and software entitlement information. The company had used Active Directory in a limited fashion to support a few Windows NT application servers and about 400 Win 2000 machines, but certainly didn't store in it the meaty data to determine every user's software entitlements. If that data was anywhere it was strewn across directory systems — Novell Directory Services (NetWare is used for print and file sharing) and X.500 for Unix systems — or stored within mainframe programs, Lotus Notes or other applications.

This Active Directory rollout also became the foundation for an identity management initiative. Active Directory will become the U.S. company's metadirectory — eventually tying into a global metadirectory — storing employee passwords, locations, job roles and hardware inventories, all of which help determine software entitlements.

Eventually, Active Directory will tie into R&SA USA's PeopleSoft human resources application so as the HR database is updated, the changes are passed to Active Directory. In turn, Active Directory will update the user's profile and alert other systems involved. R&SA USA has made its software distribution investment do double duty, gaining identity management without buying another, complex provisioning platform often costing $1 million to implement.

But first, R&SA USA had to solve a troublesome password management problem. Users had on average six passwords apiece for accessing network operating systems and applications, Heeley says. They would need all of them to reinstall their applications. But the IT team knew many wouldn't remember all their passwords, given that at the time password-related issues accounted for 40% of R&SA USA help desk calls, he adds.

Heeley searched out password management products, and in April, less than a month before the first self-installation upgrade, settled on M-Tech Mercury Information Technology's P-Synch. Tapping into Active Directory, P-Synch could synchronize passwords so that one would suffice. It would then enable ongoing self-installation resets, reducing help desk calls and related outsourcing costs (see related story, www.nwfusion.com, DocFinder: 3040).

Only three questions

The team turned to IBM's System Migration Assistant (SMA) for a back-up and restore tool friendly enough for end users to control during the cutover. "We had to wipe and load. Microsoft doesn't let you upgrade from Windows 95 to XP," says infrastructure team member Mike Johnson, of the necessity to format each hard drive as part of the upgrade process.

SMA backed up to and reinstalled from a network server. Concerned about security, the team configured

ROYAL, Continued from page 80

SMA to upload data files to user-specific home directories on the server. SMA also saved the user's "personality elements" such as screen savers, Thibodeau says. The latter "was such a hit with the users [that] they were more apt to tolerate blips during the conversion."

The network team further customized the off-the-shelf product, configuring it to run in batch mode, bypassing the tool's graphical user interface. The team wrote scripts to automate responses to SMA prompts and altered numeric messages to human-friendly messages, "so users would know they were getting a good backup," Johnson says.

A custom script also made the XP install a truly unattended process, answering XP's pop-up questions to keep the install from pausing.

Ultimately, end users launched the entire process — backup, hard drive format, password synchronization, operating system upgrade and installation of mandatory applications — by answering three simple questions from a custom script: What type of PC do you have: desktop, laptop or home PC (to determine if VPN or remote services were needed)? Where are you located (to determine what server to use)? And, what's your main network ID and password? Known to all, that password would then sync with others.

The process took about two hours, during which IT trained users on XP, Radia and, if one of the company's nearly 1,200 teleworkers, also on XP's VPN-IPX and VPN-IP services.

After training, users followed written instructions to restore data by typing in a .bat command and downloading programs from Radia. Along with the restore, Radia automatically downloaded corporatewide mandatory programs such as word processors and e-mail clients. IT typically needed only one person onsite to be the "XP coach" for user questions. In all, only 26 IT people, working part-time on this project, took part in the actual cutover.
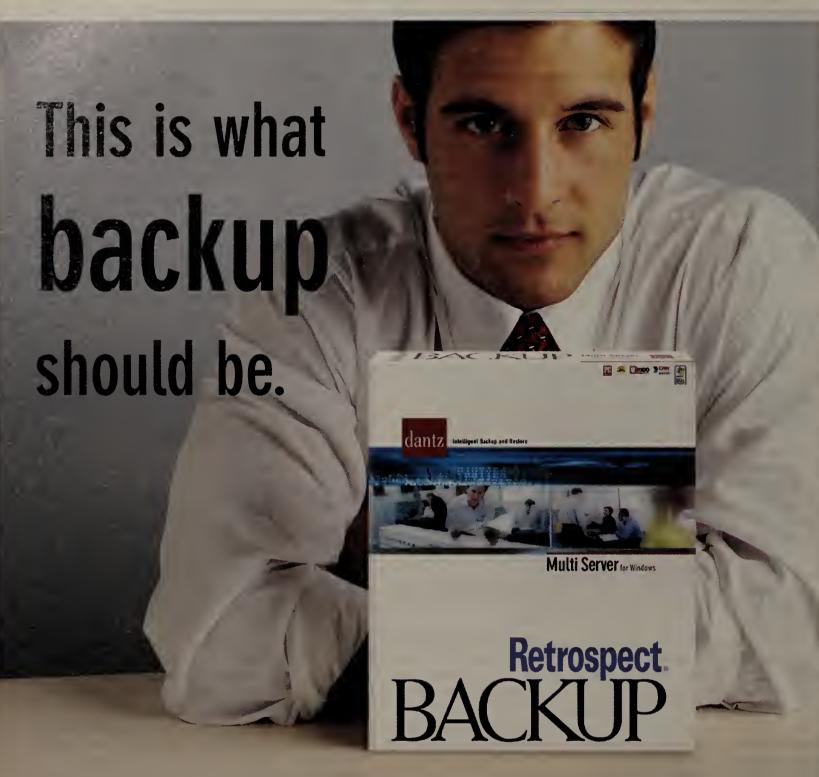
Servers for all

R&SA USA needed to modify the network only slightly. At headquarters, the infrastructure team installed an Active Directory server, a main Radia Manager server and an Oracle database for inventory information on its standard fare, Win 2000 rack-mounted Compaq servers.

The team issued each remote office its own low-end Compaq, Win 2000 Server to house Radia's software mall, forgoing backup servers to rely on those connected via the WAN for failover. Now IT in Charlotte can upload applications or patches to their local Radia Manager. Then, in off-peak hours, the Radia servers will synchronize. Local servers also house XP's RIS. So downloads, from the XP install to ongoing antivirus updates, are pushed to desktops over high-speed LAN links, not the slower WAN.

While network executives know they can't be separate from the business, rarely is the converse true. By creating a process that eases the pain of a cutover, then trusting employees to do their part, IT gave colleagues a rare glimpse into its world.

"Employees now have a greater appreciation for what has to take place in IT," Martin says, adding that ultimately the people, not just the technology, caused success. ∎

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Out-of-this-world content delivery network

BY JASON MESERVE

Tasked with finding an economical way to deliver 40 hours of training annually to each of its more than 180,000 employees, the U.S. Department of Veterans Affairs looked to the heavens. There it found the answer in the satellite network it used to provide unidirectional broadcasts to its major medical centers across the country, including Puerto Rico.

The satellite network was serving up four channels of live and prerecorded television content, mostly training and VA news, from an uplink center in St. Louis. It used dedicated bandwidth on PanAmSat's Galaxy 10 satellite, says Craig Davis, a computer specialist for the VA in Austin, Texas.

Davis and a team of four others, including consultants from Cisco, IT Broadcasting and Northrop Grumman, figured the satellite offered the best means of beaming bandwidth-intensive video to individual desktops at its hospitals without disrupting the terrestrial WAN.

With IP multicast over the satellite network, the VA Employee Education Service (EES) easily could stream a file to multiple desktops and could cache the on-demand content close to requesting users.

Eight months into this massive content delivery network deployment project, and only about halfway through, the

Craig Davis, IT coordinator (kneeling, center), created a massive content delivery network for the VA's training needs using satellite technology. His team members are (from left): Don Saunders, video engineer, VA; Steve Pollock, consulting engineer, Cisco; Jim Tomlinson, IT advisor, VA; and Ann Margaret Howard, CEO, IT Broadcasting.

DAN DONOVAN

VA is seeing dividends. One instance alone saved the agency $800,000, Davis says. Rather than sending 800 people to Chicago for a 16-hour Occupational Safety & Health Administration class, at an estimated cost of $1,000 per person, the VA broadcast the session to user desktops.

The team can add the St. Louis broadcast facility as an endpoint in a standard ISDN videoconference, thereby widely broadcasting any video training. They encode a feed and push it live over the open channel on the multicast network to user desktops. "A single H.320 [ISDN] video call at 384K bit/sec is about $50 an hour, plus some money

for the bridge that connects participants," Davis says. "Now, there's no additional cost for all the streaming users."

Overall, the EES expects to get a $25 million return on its CDN investment over the next three years by delivering content directly to users' desktops, Davis says.

Network World honors the VA as a 2002 User Excellence Award runner-up for its innovative approach in building a massive CDN for e-learning programs. The $4.5 million project lets the VA meet federal and departmental training mandates while creating a better-educated workforce and reaping huge cost savings over alternative methods. ■

Flavored with convergence

BY BETH SCHULTZ

While voice over IP is the flavor of the month at many companies, ice cream maker Wells' Dairy focused on video as the ingredient for its converged network.

Last fall, the company invested $300,000 to upgrade its network for convergence, adding redundancy and fault-tolerance into the backbone, says Jim Kirby, senior network architect. Kirby says he's accounted for switch failures and "acts of God," through a five-zone triangulated network that runs over the company's private fiber metropolitan-area network in Le Mars, Iowa.

"We are running an all-glass Gigabit Ethernet core, with a redundant distribution layer and redundant paths to our access switches," Kirby says, further stressing the predictable nature of the new network. "I can determine on a piece of paper how each packet will flow from one point on the network to any other point. That's a network managers' dream. It makes network troubleshooting so much easier," he says.

Video meetings are one of IT's big thrusts, with the team pushing IP video to the desktops of account managers, regional sales managers and other power users in and out of town. Kirby tells of an account manager in Joplin, Mo., who recently began using desktop video to deliver biweekly updates on a major buyer to company executives. Previously, the company dispatched the corporate jet to bring him to Le Mars for those updates, at a cost of about $4,000 per month, he says. Wells' Dairy is negotiating with at least one third party on running video meetings over the network, Kirby says.

But IP video isn't only for the far-flung. The IT team also is updating all of its conference rooms in Le Mars with IP-based videoconferencing gear. As it is now, some plant personnel hop across town as many as four times per day to participate in daily production and other meetings, Kirby says. Giving those employees the opportunity to meet via IP video sessions would be a huge time-saver, he adds. Kirby sup-

Jim Kirby of Wells' Dairy says he believes he has licked travel expenses with his company's investment in videoconferencing.

ROY TUCKER

ports about one IP video meeting weekly and expects usage to grow.

Network World honors Wells' Dairy as a 2002 User Excellence Award runner-up for its convergence project. ■

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Top tips
for skating through
the telecom meltdown

BY JULIE BORT

EXPERTS SHARE THEIR BEST IDEAS FOR KEEPING YOUR NETWORK SAFE WHEN YOUR CARRIER IS ON THIN ICE.

"In skating over thin ice, our safety is in our speed," wrote Ralph Waldo Emerson in his 1841 essay "Prudence." Such prudence certainly applies to network executives traversing the thin ice of the telecom industry. While bankruptcies, financial shortfalls, boardroom scandals and the like do not cause immediate, rampant service failures, they are treacherous conditions that require quick movement toward contingency plans.

As sure as heat erodes an ice sheet's strength, a provider's massive layoffs, indictments of high-level executives, uncertain reorganization plans, worthless employee stock options and decline in new technology investments eventually will affect its service — perhaps even fatally. Signs of degrading service include missed installation deadlines, longer trouble-ticket resolution or increased finger-pointing, extreme difficulty in resolving billing mistakes and generally sloppy customer service from embittered, beleaguered employees.

Naturally, network executives are playing it cautious. They are seeking alternatives to guarantee that looming service problems do not disrupt networks. The central trade-off is between cost savings from volume discounts using one provider and the increased reliability of con-

tracting with two or more carriers, they say.

"Using multiple [service providers] can provide a completely stable network, but it will increase my costs 25% a year — at a minimum that equates to $100,000 a year," says Bernie Lubitz, director of telecommunication technology and services for Martin Memorial Health Systems (MMHS), a hospital system with 10 locations in southern Florida. That's especially harsh during this slow economy when managed healthcare is being pressured to provide better care at lower costs.

MMHS traditionally has gone the cost-savings route with a single provider, most recently troubled competitive local exchange carrier (CLEC) Adelphia Business Solutions. While Lubitz and his legal staff did due diligence on Adelphia's finances before contracting with the carrier two summers ago, they could not have realized the buried accounting improprieties that would lead to a Chapter 11 bankruptcy filing in March of this year. The CLEC could be the poster child for the telecom industry's woes. Adelphia has crumbled under a massive debt load and leadership practices so far afield that, in July, federal prosecutors filed an indictment for alleged corporate pilfering

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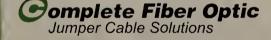
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TIPS, Continued from page 87

against four Adelphia executives, including founder John Regas and his two sons.

Even though Adelphia has obtained a cash infusion that bodes well for continued operations and it has delivered uninterrupted, quality service to MMHS throughout this period, the CLEC's troubles have given Lubitz pause. He says he will not simply renew his expired Adelphia contract, but is investigating all options for leasing critical WAN fiber. "MMHS can't cost-justify laying its own fiber, so is evaluating options from BellSouth and CLECs, including Adelphia. But we've learned that dealing with CLECs can be extremely painful," Lubitz says.

Contract wrangling

If you, too, are feeling the pain, understanding your options can bring relief. Leave the details of your services contracts to legal counsel, but get a grasp of the basics. First, know that you can't terminate your contract with a service provider simply because it files for bankruptcy — even if your contract explicitly states that you can, says Hank Levine, a partner with Levine, Blaszak, Block & Boothby, a Washington law firm that specializes in user telecom contracts. Such statements, called ipso facto clauses, "are not enforceable in the United States, period," he says.

As soon as a carrier declares bankruptcy, financial decisions rest with the overseeing bankruptcy court, which will immediately freeze contracts into place, says Colleen Boothby, another partner with the firm. Ending a contract requires petitioning the bankruptcy court.

You won't find the court sympathetic. A bankruptcy court's goal is to protect creditors — not customers. Most service providers in bankruptcy protection have neither turned off their networks nor even missed uptime requirements or other significant technical service metrics. They are not in breach of their service-level agreements (SLA). Rather, service tends to deteriorate first in what Levine calls the "soft aspects," such as responding quickly to your phone calls or fixing a billing error. In the unlikely circumstance that your SLAs spell out expected performance in soft aspects, your lawyers may be able to use failures there to convince a bankruptcy court that your carrier breached the contract. But even with evidence that the provider has missed some of its hard-and-fast technical SLAs, the court will not likely terminate a source of revenue like your monthly checks.

A carrier's bankruptcy can have two positives for customers, Levine says. For one, operations replace stock price as the company's primary focus. Now is a good time for you to press your account team into operational-related promises, perhaps shoring up their commitments to soft services (even if such promises don't hold the legal weight of a formal SLA).

Secondly, when a company sheds its debt, it can price services aggressively — and is motivated to win new business or renegotiate existing contracts. This is an excellent time to negotiate extremely favorable prices, maybe even helping you fund the expense of a second, back-up carrier.

Check your assignment

Bankruptcy proceedings typically take a year to 18 months to complete, after which anything can happen —

the company might emerge and continue to function, or it might be sold in entirety or in pieces.

Watch for news of a potential sale. Such a sale could affect you because your contract could be among the assets sold in a process called assignment. While your contract might include a clause forbidding assignment, it, too, is unenforceable, Levine says. But, should your contract be assigned to a carrier unable to provide all specified services, such as datacom and long-distance, you might have legal recourse, he adds.

If you are aware of a potential sale and are concerned that your contract might wind up in the hands of a carrier you don't want, you'll need to get your lawyers hopping right away. They might be able to get your opinions heard by the bankruptcy court, perhaps by linking up with other, similarly concerned users.

When it comes to working with bankrupt carriers, size matters, too. As the largest corporate bankruptcy to date — and of a dominant carrier — contract issues with WorldCom are far more complex than they are with small CLECs, Boothby says. For instance, even if you intend to stand by WorldCom, you might not have that option. If WorldCom emerges from bankruptcy and continues operations, per typical practice, it would get to accept or reject existing contracts, no matter their terms. No one knows how much time customers would have to move should their contracts be rejected. Several large WorldCom customers have banded together to lobby the bankruptcy court for a ban on contract rejections and other issues. Consider pressing your legal team to join them. But even if your company remains apart, the involvement of these users could affect how the courts treat any request you submit, so have your legal colleagues keep you abreast of such goings-on.

WorldCom also might want to insert a rejection-rights clause into any new agreement you make at this juncture. Creditors often push for this so that the company can preserve maximum flexibility, Levine says. Make sure your lawyers watch for such a clause. If WorldCom won't remove it, you could be better off with another provider that can offer competitive rates at a guaranteed term.

Owners or lessors

If your contract expires, or you have the legal wherewithal to end it, your next challenge is finding a better replacement. This obviously won't be easy given the number of troubled providers these days. One consideration is whether to align with a facilities-based provider that owns its own network infrastructure or a services-based provider that leases capacity from multiple carriers. The classic belief is that financially stable facilities-based providers such as AT&T are the safest bet for a long-term contract. But contracting with a services-based provider for WAN links is often equally safe, and in some instances safer, says Steven Taylor, president of Distributed Networking Associates and Network World's Packet Evangelist columnist. In the WAN, a services-based provider can tap into many more paths, owned by multiple carriers, than a facilities-based provider locked into its own infrastructure.

Taylor offers as an example Virtela Communications, one of Network World's 2002 10 start-ups to watch (see www.nwfusion.com, DocFinder: 3025). Virtela buys

Internet bandwidth from multiple sources and moves traffic from one connection to another if performance on a particular link wanes (see related story, page 68).

As long as the services-based carrier can offer you evidence that it is financially well-heeled, this might be a way to get the performance benefits of splitting traffic among multiple providers while obtaining the financial benefits of a volume discount with one carrier. Of course, many services-based providers are start-ups that don't have the income or the cash reserves that the nation's large facilities-based carriers do, so future instability is a concern. Should you take this route, don't contract for more than two years of service, and be sure to spell out many soft-aspect SLAs.

Splitting the traffic

The safest bet remains dividing services among two or more providers. But that's not an automatic safety net. Certain other precautions are wise, says Barry Nance, a consultant, a Network World Test Alliance member and author of books such as Introduction to Networking.

"For maximum reliability, ask both telecom vendors to give you a detailed description of the physical data path each link uses. If both paths happen to occasionally share physical space or connections, such as between your site and the local [central office], evaluate your risk for something calamitous happening to both links," Nance says.

Because cost is almost everyone's issue these days, determine which links are critically important, and contract for a back-up provider for only those links. Then, because you are paying for both links anyway, "activating the second link as additional bandwidth and splitting the workload across both links is a natural thing to do. If both links are continually active, you don't have to take any steps to cause failover from one link to the other when problems occur," he adds.

If last mile or remote areas are your most worrisome vulnerabilities, consider fixed-broadband wireless such as microwave or satellite, suggests John Hatton, a telecom director at Burlington Northern and Santa Fe Railway Co. His experience using fixed-broadband wireless spans 15 years. In that time, he's seen microwave and satellite technologies improve to the point of high reliability.

"Depending on the level of redundancy you want, satellite technology [not really good 15 years ago] and … microwave are certainly worth another look, especially for remote areas," he says.

MMHS' Lubitz agrees. A microwave carrier is among five providers the hospital short-listed as it researches telecom options. It is considering the carrier for secondary service now that such providers claim "five-nines" reliability, Lubitz says.

Any of the various flavors of wireless links, from satellites to line-of-sight antennas, can provide the same kind of network interface enterprise users are accustomed to for T-1 or frame relay, Nance says. So the mechanics of setting up such connections won't require special equipment or training. But don't try to use such links only when failures occur, but load-balance between them so "when a problem happens in just one link, you'll merely suffer a lessening of bandwidth, not an outage," he advises.

One final tip: Be creative. Think about working with peers — perhaps other members of a user group or an industry-specific consortium — to negotiate prices with a carrier, users say. This can be particularly helpful in offsetting a loss of a volume discount when splitting your business among providers. Likewise, Boothby recommends, consider joining a telecom regulatory watchdog group such as the Ad Hoc Telecommunications Users Committee, which helps see that users are fairly treated by regulatory agencies over pricing and other issues.

By moving quickly but prudently, your network surely will weather this telecom meltdown. ■

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Best ways
to keep your cool
(while the industry loses its)

BY SUSAN MARKS

EXPERTS SHARE ADVICE ON HOW TO MAINTAIN AN EVEN KEEL NO MATTER THE JOB PRESSURES.

If your year is progressing like it is for other network executives, you are shorthanded but still rolling out network upgrades and major new applications. Traffic on your WAN is growing exponentially while your primary service provider is mired in financial scandals. You've smoothed over the usual number of "us vs. them" IT skirmishes but also must deal with general fears about the economy. You have all the makings of a stressed-out workforce.

But it doesn't have to be that way. With the right approach and execution, network executives — and in turn their staffs — can stay cool as cucumbers and get the job done in spite of today's pressures. Here are a few expert suggestions on how to do just that:

■ **Frequently align IT strategies with corporate goals.** That's the bottom line, says Lynn Caddell, CIO of 36,000-employee transportation behemoth Yellow Corp., in Overland Park, Kan.

Forging a partnership between IT and the business side, with shared goals and shared pain, can reduce stress levels by cutting down the finger-pointing, adds Walt Thomas, CIO of Computer Associates. He meets with senior corporate executives at least once per quarter to discuss their plans and how IT can satisfy their needs. As a result, he says, senior executives are setting the priorities and therefore less likely to rail against technology implementations.

This kind of regular prioritization with the business leaders not only reduces stress, but also helps IT remain focused and productive, Caddell adds.

■ **Focus on what is important to corporate survivability.** In stressful times, the tendency is to try to do everything at once. Network professionals often waste their energies trying to integrate the newest technologies or find vulnerabilities across the entire network. Your efforts would be better spent identifying the corporate assets that are key to survivability, then concentrating on taking care of those, says Larry Rogers, senior member of the technical staff at Carnegie Mellon University's Software Engineering Institute, a federally funded research and development center in Pittsburgh. Rogers teaches a course there called Survivability: A New Network Perspective.

For network professionals, that can mean adjusting your thinking and priorities, adds Karl Slaikeu, a clinical psychologist, president of Chorda Conflict Management and author of *Crisis Intervention: A Handbook for Practice and Research*. He suggests making two lists — one with

things to do immediately and the other with what to accomplish later.

Items for the do-right-away list should include any that would reduce options later in a big way if not taken care of immediately, Slaikeu explains. Deciding on how to fix that broken Gigabit Ethernet switch would be a priority, something to be addressed before it reduces networking options.

■ **Simplify.** Turn a big problem or overwhelming situation into a manageable one by approaching it incrementally as a series of small solvable issues, suggests Ryan Hunter, senior technology consultant in Watson Wyatt Worldwide's eHR practice in Minneapolis.

Don't overlook simplifying the network and its equipment or your approach to it, either. For example, don't think of 10,000 computers linked via your network, but of 10 types of machines replicated 1,000 times, Hunter says. With fewer technologies in place, staff doesn't need as much training either, he adds, because if one thing breaks, all the machines will have the same attributes.

SIGNATURE SIGN-OFF

■ **Adjust your management style.** Because corporate survivability is an issue today, employees tend to think of their jobs as at risk, too. Network department heads need to adjust their style accordingly to reduce that stress on the staff, says Valerie O'Connell, managing director of enterprise management for Aberdeen Group.

Combat employee fears by being more visible and open about the decisions you make, says Chris Edgelow, president of Sundance Consulting. Leaders must get out of their offices and create opportunities to talk with people on a regular basis. Hosting a "Lunch with the Boss" once a week in the cafeteria — buying dessert for anyone who shows up — is one way to be out there, listening to what people have to say, answering questions and addressing issues and concerns, he adds.

And don't forget to smile, says CA's Thomas, a 30-year IT veteran who takes the business' ups and downs in stride. He's smiling a lot these days, he says, although not always because he's happy with what's going on. At the end of the day, a smile goes a long way toward [brightening] your attitude. The objective is not to drive people to work, but to get them to [want to] work hard for you and to get them to care about the company and their own jobs."

Marks is a freelance writer in Denver. She can be reached at sjmarksco@aol.com.

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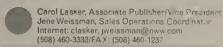Sharon Sterns, Manager Client Services

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BackSpin Mark Gibbs

Dealing with details

Last week I talked about how not paying attention to details has affected Emusic. But Emusic is not alone. Getting the details right is hard. Unfortunately, you don't have a choice — at least, if you want to stay in business.

The problem of dealing with details arises when a project starts and people say, "Oh, we'll work out the details later." This statement must rank as one of the most dangerous assumptions that can be made in business.

It is like saying that you're going to climb to the top of Mount Everest as you actually start the climb. By the time you're high up enough to know you need oxygen, it is a little too late to get your hands on any.

In business, much the same problem applies. How many times have you started a project working from "the big picture" (top down) with the intention (really a belief more akin to religious faith than an actual plan) to map out those niggling details later?

One place we all know that the "top down leave the details for later" approach just doesn't work is in software engineering.

We've all heard the stories of software projects that bit the big one because of some stupid, little system issues that should have been nailed down before coding. Given that wealth of negative experience, you'd think that such snafus would be a thing of the past.

No such luck. The industry hears every month of another CRM or ERP project that has tanked because it was out of control. Occasionally random bad luck is involved, but not usually.

Usually the problem lies in the assumptions. "Ah," someone says, "we'll use X," where X is a process or component or something that does something you want. And under normal conditions X is great. But as it turns out, under other conditions, X becomes the source of catastrophic failure.

Let me give you an example: A financial company was very concerned about the availability and security of its data and so located its back-up data center in Phoenix (no earthquakes and no flooding — the latter had caused the company a problem with its first data center).

It leased the sixth floor in a new building, installed an air conditioned, lights-out computer room and, to suppress radio emission, "caged" the room. The company had a back-up generator, fire suppression system and multiple data lines. What could go wrong? Well, the water tank on the roof burst.

Several thousand gallons of water percolated through the building's structure, and because the computer suite was caged, filled it up to a depth of a couple of feet.

And, of course, this happened at night. Had a fire started, the smoke alarms would have raised a warning, but the company didn't have flood alarms — who'd need those on the sixth floor?

Now the more generous of you might say, "Come on, Gibbs, that was a 1000-to-1 chance! Who could have foreseen it?" Sorry, but being hit by a meteor is a 1000-to-1 chance; being flooded on the sixth floor should have been considered.

The details are what get you every time and are generally what make IT's job so damn hard. It's the little details that define the true cost of IT operations. Some you deal with as they emerge because the world changes, but others should be planned for if you're any good at your job.

When it comes to projects, that million-dollar budget is great for getting off the ground, but the details that emerge from lack of forward thinking will cost you half that again or more.

The devil, and hell, is definitely in the details. So the next time someone in your IT group says "Oh, we'll work out the details later," tell 'em about the flood on the sixth floor.

Send a tsunami of comments to backspin@gibbs.com.

'NetBuzz News, insights, opinions and oddities

By Paul McNamara

Pity the poor telemarketer?

When Buzz first chatted with Gryphon Networks CEO Keith Fotta a year ago it was easy to see how his company was positioned for success. Gryphon sells a network-based service that lets telemarketing companies comply with a mushrooming roster of state-maintained do-not-call lists.

A year later, six more states have passed such laws — 32 now have them — and bills are pending in all 18 others. Only a legislator looking for a career change would dare oppose such popular consumer protection, and with enforcement agencies levying millions of dollars worth of fines, only a foolish telemarketer would continue to dial without using a service such a Gryphon's.

Sounds like a winning business model, all right.

However, what wasn't apparent during our initial conversation — not to Buzz, at least — was how easily Gryphon might fall victim to the same antipathy toward telemarketing that spawned the company. Fotta set me straight on the stakes recently while explaining why he opposes an effort by the Federal Trade Commission to establish a national do-not-call list.

"Consumers are not going to benefit from having a national list," says Fotta, who cites redundancy and the federal government's limited enforcement resources among a litany of objections. "The real scary thing that I'm most afraid of for the telemarketing industry is that if the national list gets passed they're talking about it being free to consumers. [Some states charge a small fee; others are free.] That will collapse the telemarketing industry, and I'll tell you why."

Please do.

"In states where there's any kind of fee, 7% to 10% of consumer households will sign up. In states that are free, 50% or more will sign up," he says.

What's wrong with more people signing up?

"The telemarketing industry disappears," he says.

Again, what's wrong with that?

"I'll tell you: The Direct Marketing Association [DMA] releases numbers that say there was $661 billion in revenue generated last year by the telemarketing industry, which employs 6 million people. The thing they don't tell you is that the big financial services companies aren't considered part of the DMA. If you put Wall Street — every bank, every brokerage firm, every insurance company — on it, the number goes to 10 million people that generated over a trillion dollars for the U.S. economy, which is 12% of the gross domestic product. That's not something you want to screw around with going into a recession and a potential war," Fotta says.

So you're telling me that we want to set up a system that by its nature limits participation to 10%? Why would we want to do that?

"No, what we're doing is putting a responsible mechanism in place where people who want to sign up for do-not-call lists have to have some skin in the game."

Fotta also says that consumers should have to renew their do-not-call request periodically, say every two or three years, to ensure that numbers do not remain off-limits to telemarketers long after their owners have moved.

He does not believe in soft-pedaling the hyperbole.

"You take telemarketing away and there's no Wall Street," he says.

In other words, all that stands between modern life and a return to an agrarian society is the noble telemarketer.

On one level — a very shallow level — he's right about the fees: It's hard to argue that protection from telemarketers is truly important to an individual who won't cough up a couple of bucks per year.

But overall, his argument is self-serving bunkum. Even cheapskates should be entitled to a little peace and quiet at dinnertime without having to jump through hoops.

Reaching me couldn't be easier. The address is buzz@nww.com.

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